THE
MEDICAL AND SURGICAL
REPORTER.

No. 1989. APRIL 20, 1895. Vol. LXXII—No. 16

ORIGINAL ARTICLES.

ETIOLOGY AND PROPHYLAXIS OF PULMONARY TUBERCULOSIS.*

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The question of contagion in tuberculosis appears to be still in controversy. The older writers were almost universally opposed to the theory of contagion, and the great Louis, who wrote some fifty years ago, and to whom is due the credit of having made a more careful and elaborate investigation into all questions relating to pulmonary consumption than any other man of the age in which he lived, does not even mention contagion as a cause of the disease. Dr. Thomas Watson, another eminent authority, in reply to his own question, "Is consumption contagious?" says, "No, I really believe it is not. * * * The disorder, I am satisfied, does not spread by contagion." Prof. George B. Wood, in his excellent work on the Practice of Medicine, published some thirty-five years ago, says, "Phthisis is pre-eminently a hereditary disease," and he was in the habit of advising his pupils, before pronouncing a diagnosis in any case of lung disease, to trace back the pedigree of the patient to at least the grandparents, before abandoning the search for some hereditary predisposition of phthisis. He does not allude to contagion, or any specific agency as a possible cause of consumption. Dr. Austin Flint ignores contagion, and leans so strongly to the theory of heredity that he says, "It may reasonably be conjectured that a predisposition may be inherent in the organism of persons none of whose relatives have had phthisis. Indeed, it may be that the diathesis always involves a congenital predisposition, that is, it is never wholly acquired." Dr. Cotton, of the Brompton Hospital for Consumptives, and Dr. McCormac, of Dublin, are strongly opposed to the theory of contagion, and the former goes so far as to say that "a residence in the consumptive hospital (Brompton), and a long continued working in its wards, is a good way, indeed, not to catch the disease." This declaration he bases upon statistics collected at his hospital during a period of twenty-one years, showing an exceedingly small percentage of mortality from consumption among the internes of that institution. The much quoted Dr. Williams apparently straddles the question, and while, in the main, combatting the theory of a specific contagion, admits "that a noxious influence may pass from a patient in advanced consumption, to a healthy person in close communication, and may produce the same disease."

On the other hand, M. Villemin, in 1865, after a series of careful experiments on healthy rabbits, announced that tubercle is a virus, and communicable from one animal to another. His experiments were repeated by Lebert and others with results

*Read before the Lehigh Valley Medical Association, at Easton, January 31, 1895.—From advance sheets of "Lehigh Valley Medical Magazine."

that confirm the opinions of Villemin. Tappiener, of Meran, experimenting on dogs, succeeded in producing tuberculosis of both lungs in ten out of eleven of them; and also of the kidneys in most of them, by causing them to inhale the air of a chamber previously contaminated by spraying, with an atomizer, a mixture of tubercular pus with water. The seances were daily of two hours duration, for an average period of thirty-five days. Every physician, of any considerable experience, must recall numerous instances in which persons in good health, without any hereditary tubercular taint, have died of consumption after intimate and long continued association with one sick of the disease; as in nursing a dear friend.

Notwithstanding the negative testimony of Dr. Cotton, we have, on the contrary, the records of numerous institutions, under the charge of the Catholic Order of Sisters of St. Francis, which show a fearful mortality from consumption among these assiduous and devoted nurses. My personal observations, during a period of twenty-two years' service at St. Joseph's Hospital, Reading, Pa., under the management of said sisters, confirms the reports from other similar charities. This large mortality among these sisters from this cause, cannot be ascribed to heredity, since they are not the descendents of any special class or community of people, but represent various classes and nationalities and, therefore, are presumably fair exponents of the average health of the general population.

Nevertheless, fourteen years after the discovery of Villemin, Dr. Henry Hartshorne, in a note to Reynold's System of Medicine, after reviewing the experiments of Villemin, Lebert, Tappiener and others, and after fully discussing numerous supposed examples of infection, states as one of his conclusions, that "Tubercle is not a specific morbid product, and therefore in no strict sense can phthisis be called a contagious disease." However, in the light of recent bacteriologic research, prosecuted with such earnest zeal in almost every part of the world; of the discovery, by Villemin, of the communicability of tuberculosis from one animal to another; of Koch's find of the bacillus tuberculosis, a microbe constantly present in the disease; and of clinical experience; it is difficult to escape the conviction that tuberculosis belongs to the list of zymotic or contagious diseases, and that the Koch bacillus is the pathogenic agent thereof. I cite the opinions of the older authorities chiefly to show how tenaciously the mind clings to old dogmas based upon antecedent authority, and how difficult it is to root up such dogmas even by an array of stubborn contradictory facts.

But, laying aside the statement of facts and statistics, what conclusions can we come to in regard to the contagiousness of consumption by a process of reasoning? It cannot be denied that the disease is governed by the universal law of cause and effect; being an effect, it must have a cause, and this cause must be either intrinsic—be inherent in the individual, or come from without. Now, if the disease were universally hereditary, as has been contended by Flint, it would be liable to spontaneous extinction, under the two laws of "natural selection" and the "survival of the fittest." Under natural selection because marriageable young people are inclined to shun conjugal relations with those who are afflicted with, or manifestly predisposed to the disease; thus diminishing the opportunities of propagating phthisical offspring. Under the survival of the fittest, because the average age of consumptive women at death is only about thirty years, and from the marriageable age to that of thirty, they cannot bear as many children as healthy women do up to the age of the menopause. And, besides, of the children they do bear some would die of tuberculosis, in addition to the usual mortality from other causes, before arriving at the age of maturity. For these reasons it would follow, as a natural consequence, that the ratio of the consumptive to the healthy population would diminish in each succeeding generation, until the disease would become extinct in the human family in the lapse of ten or twelve generations; this has not been the case.

But the anti-contagionists contend, further, that the predisposition is inherited in only about thirty-three per cent. of all cases, while in the remaining sixty-seven per cent. it is acquired by the operation of such causes as imperfect nutrition, vitiated atmosphere, depressing mental emotions, excessive venery, intemperance, etc., and, in fact, any cause that will lower the vital

energies. But predisposition, whether inherited or acquired, is not a disease; it is simply a condition of diminished resistance in the economy to the aggressive operations of pathogenic agencies. If tuberculosis were an affection developed fortuitously, and not dependent upon any specific extraneous cause, this condition of diminished resistance would be just as likely to develop typhoid fever, diphtheria, or smallpox, as phthisis, because these maladies also thrive best on conditions of lowered vitality. But no one would allege, in this age, that smallpox or scarlatina are of spontaneous development.

Having accepted the theory of contagion and the communicability of tuberculosis, the subject of prophylaxis becomes invested with an increased and all-important interest. It is a problem as broad and intricate as the disease is widespread and insidious, and involves a radical disturbance of many existing domestic, social and financial relations and usages. Realizing the importance of the subject the profession, as well as boards of health and other legally constituted sanitary authorities, are rapidly adopting both advisory and compulsory measures of prevention.

In order to acquaint myself with the work done up to this time by some of the principal cities of our country, in the matter of prophylaxis in phthisis, I recently addressed letters of inquiry to the secretaries of the boards of health of the following cities: New York, Philadelphia, St. Louis, Baltimore, Washington, Buffalo, Cleveland, Detroit, Chicago, Cincinnati and Boston. From New York, Philadelphia and St. Louis, I received printed literature on the subject, consisting of rules, instructions and advice to the profession and laity. From the next five cities the replies were that they had taken no steps in the matter, and from the last three there were no replies.

The literature issued by the first three named cities is based upon the theory of the communicability of consumption, and the preventive measures recommended in the circulars, are chiefly intended to guard against the inhalation of dust arising from pulverized dried sputa of consumptives. Other sources of infection are barely mentioned, and the public is lulled into a sense of false security, by being advised to guard only against one channel of infection when others remain unguarded. The New York Board says: "This matter, spit upon the floor, walls, or elsewhere, is apt to dry, become pulverized and float in the air as dust. The dust contains the germs, and thus they enter the body with the air breathed. The breath of a consumptive does not contain the germs, and will not produce the disease." The Philadelphia Board says: "There is no danger from the mere breath of a tuberculous patient. The risk is from dried expectoration." Medical writers, through our numerous journals, reiterate substantially the same views; namely, that the chief danger of infection lies in the inhalation of dust arising from the pulverization of the dried sputa of consumptives, and that tuberculosis could be easily stamped out if the sputa was scrupulously collected and destroyed.

While I fully admit the great danger from the inhalation of contaminated dust, as described, I also contend that tuberculosis can be communicated by the breath of a person whose lungs are affected by the disease. Not by the breath of ordinary and tranquil respiration, but by the breath in coughing. Let us see how this may happen: the act of coughing consists of several distinct processes; 1st, a long and full inspiration of air; 2nd, closure of the glottis and epiglottis to retain this air; 3rd, a powerful contraction of the muscles of expiration, placing the air in the lungs under a heavy pressure; and, 4th, a sudden opening of the glottis and epiglottis, accompanied by a forcible but momentary explosion of a blast of compressed air; and then a succession of sudden closures and re-openings of these organs, until the entire volume of compressed air in the lungs has been expelled in a series of forcible jets, carrying with them the offending matter in the air passages. This is followed by other full inspirations and the succeeding spasmodic expiratory blasts until the paroxysm of coughing comes to an end. The flapping movements of the epiglottis, the rapid vibrations of the vocal bands and mucous membrane of the larynx together with the friction of the forced jets of air, lash a large quantity of the escaping pus into a spray or mist which is blown into the apartment of the invalid. In other words, the human larynx, during the act of coughing, is a living atomizer or nebulizer, by which the atmosphere

surrounding a consumptive person is constantly impregnated with atomized pus, carrying with it myriads of tubercle bacilli. This spray floats like a mist, and is wafted about the sick-room by every movement of the attendants, bed-clothing, curtains, fans, etc., and is, of course, inhaled, to a greater or less extent, by every person occupying the apartment. Being moist and fresh from the diseased lungs, it is far more infectious than the dust from dried sputum, in which many of the germs of the disease have lost their vitality by long continued desiccation. When we consider how incessantly the paroxysms of coughing occur in many cases of phthisis, and how, in almost every act, some pus is expelled from the larynx, it is no stretch of the imagination to conceive of the sick chamber of the consumptive to be literally filled with a mist of atomized infection.

Both the Boards of Health of New York and Philadelphia declare, in their circulars to the laity, that consumption can be largely prevented by simple and easily applied measures of cleanliness and disinfection, and have formulated a system of very excellent rules of asepsis and antisepsis, in the treatment of the sputa; but in omitting a warning against the danger from the inhalation of atomized pus, invisible to the unaided senses, they tend, as before stated, to delude the public into a false sense of security, while yet in the midst of great peril.

In view of the results of the experiments of Tappiener and others, in communicating tuberculosis to the lower order of animals by simply causing them to inhale an atmosphere impregnated with atomized phthisical pus, the possibility, and, indeed, the great probability of the disease being propagated from man to man, by the breath, should not be ignored. This channel of infection has hitherto been either unsuspected or overlooked, and it behooves our sanitary authorities, as well as the profession, to warn the public against it. The subject is certainly worthy of further investigation, and it is with this view that I humbly suggest it to the consideration of my fellow members of this Association.

By prophylaxis we understand the practice of all measures to prevent the occurence, and arrest the progress of the disease. Regarding consumption as a zymotic disease, engendered by a pathogenic microbe emanating from an affected individual, *isolation* is obviously the most effectual prophylactic measure. But, as man is a gregarious animal, perfect isolation is impossible, because it would imply that every affected person should live the life of a hermit. Isolation by segregation, then, becomes the next best method. Separate wards in hospitals, almshouses, and other eleemosynary institutions, as well as hospitals for the exclusive use of consumptives, could be established. Under a more enlarged and comprehensive application of this idea, communities of consumptives could be organized. If legislative bodies possess a constitutional right to appropriate the public funds, which few people now doubt, for the establishment of asylums for the insane and epileptics, with the view of protecting the community against injury to the person and damage to property, surely the commonwealth would have an equal right to establish homes and communities for consumptives, to protect its citizens against the ravages of this fearful scourge —tuberculosis.

An ideal institution of this kind would embrace, in the first place, a large tract of land in some healthful locality, upon which, as a nucleus, a home for these invalids could be erected, which would, by more or less rapid accessions, develop into a community. The land would afford ample opportunities for out-door exercise in various agricultural and horticultural pursuits; and for the organization, from time to time, of small industrial establishments for the employment of such of the inhabitants as were skilled in the mechanic arts. In this way the institution might be made to become almost self-sustaining. This would, however, be only a trifling consideration compared to the more important results that would accrue from the isolation of the sick from the healthy; from the excellent hygienic advantages afforded to the inmates; from the superior facilities for the practice of asepsis and antisepsis; and from a more systematic and methodical therapeutic treatment than is usually followed, at least among the poor, in private practice.

Domestic relations would necessarily in most instances have to be disrupted, but this disadvantage would in a great measure, be compensated by the establishment of

pleasing social diversions; and life in such a community would not be nearly as forlorn and dreary as might at first thought be supposed. Many perplexing questions would, no doubt, present themselves in such an enterprise, which only time and experience would enable us to solve; but the experience we have already obtained in conducting asylums for the insane and other public institutions, would be an invaluable guide to us.

Ventilation, probably, comes next in importance to isolation as a prophylactic measure. Recognizing as the two chief sources of infection the nebulized pus and the dust from pulverized pus, both of which are almost as evanescent as air itself, it is evident that a frequent change of the air in the apartments of the sick would greatly reduce the danger of infection; besides affording the vitalizing influence of pure oxygen, and averting the baneful effects of carbonic and other expiratory gases. The old-fashioned open chimney-place, with a grate-fire, stands at the head of ventilating devices for dwelling-houses; where this is not available, a large flue with a wide funnel-shaped opening, pendent from the ceiling or projecting from the wall, having a heated stove-pipe running along the axis of the flue to create an upward current, would answer as an efficient substitute. Into either of these devices, a tide of air is constantly converging, and if the invalid's bed, or chair, were so placed as to enable him, while coughing, to simply direct his face toward the open mouth of the ventilator, the nebulized pus, at least, would almost all be carried out of his apartment.

The importance of asepsis, as at present generally taught, in carefully collecting and destroying by fire, all the visible and tangible purulent expectoration, and other measures of scrupulous cleanliness, cannot be overestimated. Neither is diligent antisepsis, by various agents and methods too numerous to recapitulate here, of much less importance. By this measure we not only destroy the contagion deposited upon the walls, furniture, clothing, etc., in the shape of nebulized pus, but also that of dust which will arise notwithstanding the most careful asepsis.

It may be rash to prophesy that the time may come, and it is to be regretted that it has not yet come, when the infant science of bacteriology, aided by chemistry, will discover some volatile and diffusable agent which will be germicidal to the bacillus tuberculosis but innocuous to human life and health. The hope that such a discovery may yet be made is not altogether visionary; but until it is made, it appears to me that there is no certain way, except perfect isolation, of escaping the danger of infection in pulmonary tuberculosis, from the inhalation of atomized pus, unless it be by artificial immunity.

Prophylaxis by the conferring of immunity is a theory which is at present gaining great favor in the profession. Nature is constantly reminding us of and trying to teach us this principle of immunity, by showing us, in our daily observations, how, in the case of a number of contagious diseases, one seizure produces an immunity against another. Long before the time of Jenner, the profession utilized this principle by the practice of inoculation against smallpox. Jenner improved upon this practice by using the virus of variola only after modifying it by passing it through the blood of the cow, and thus securing the inestimable advantage of depriving it of its variolous contagion.

For upwards of a century after Jenner's discovery of the vaccin virus, until Pasteur's announcement of his antitoxins for anthrax and hydrophobia, the profession rested almost in a state of lethargy in relation to the evolution of the principle of immunity. With a knowledge of the existence of natural and acquired immunity, and of the protection afforded against smallpox by vaccination, it is surprising that science was not stimulated to make any advances in this direction during so long a span of years.

Professor Koch's world-famed tuberculin, although it has failed to sustain the claim originally made for it, as well as the recently introduced diphtheria antitoxin, are important steps in the direction of prophylaxis by immunity. The antitoxins, it is true, are intended to cure diseases; but it is evident that if they should prove antagonistic to the morbific agents already developed in the economy, they would prove equally effectual in inhibiting their inception, and thereby confer immunity. The theory of artificial immunity appears to be a plausible one; and although many failures may yet be expected in the numerous experiments now

in progress and hereafter to be inaugurated, the scientific mind has been thoroughly aroused to the importance of the subject; and it is hoped, as well as believed, that the time is not very remote when many of the contagious diseases, especially the fearful malady under consideration, will be shorn of their power to devastate whole families, communities and nations.

CONTRIBUTIONS TO THE STUDY OF THE ETIOLOGY OF HEPATIC CIRRHOSIS*.

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I have collected, during the last two years, fourteen cases of vascular cirrhosis of the liver, and in ten of them there is a history of alcoholism. The opinion, therefore, that alcohol is of importance in the etiology of cirrhosis seems justified, apparently, but only apparently. One remark ought to be made in the beginning. The use of alcohol is, at present, so wide spread that among adults, men especially, one can scarcely find ten per cent. who do not take it. It is not surprising that alcoholism should be often noted in cases of cirrhosis.

Of our fourteen cirrhotics, thirty per cent. do not take alcohol at all. Of the ten alcoholic cirrhotics, we must consider that five only have really abused alcohol. For example, one of the patients, the janitor of an apartment house, has used alcohol only during the last nine years, being now thirty-nine, and in doses of only one one or two small glasses of *eau-de-vie* occasionally before dinner. Again the wife of a shoemaker, aged thirty-eight years, married at the age of eighteen, who, during the first few years of her married life, and then only on visits, has used alcohol to the extent of five or six little glasses, once or twice a month. Also a bookbinder who, from time to time, drinks a few little glasses at great festivals, or when in company, and who has rarely gone so far as to drink half a bottle. Also a cook drinking *eau-de-vie* to the amount of a bottleful in a whole day, once a month after a washing, who has never been drunk and who, for the last seven years, after ceasing to do washing has not drunk at all. Finally, a terrace-maker (sodder?) who would drink every day, after hard work such as laying turf, a cup of tea with *eau-de vie*. This last is the only case in which the use of alcohol verges on abuse.

But what is much and what little, with regard to alcohol? It cannot be measured in numbers of glasses. For one a small glass is an abuse, for another it signifies nothing. Our sodder belongs to a class of peasants whose use of alcohol is more or less habitual. His father drank *eau-de-vie* moderately, and he has doubtless acquired by heredity a certain immunity against the effects of alcohol. He has never been fuddled by his cup of *eau-de-vie*, and rarely, on great feast days, has he become drunk.

Thus, in these five cases, we can not ascribe to alcohol an essential rôle in the production of cirrhosis. The use has been moderate, less than usual, especially if we take into consideration the class of society to which the patient belongs.

Nevertheless, there remain five cases (35 per cent.) in which the abuse of alcohol is irrefutable. But what are the occupations of these patients? Book-binder, janitor of a rooming house, peasant, German mechanic, sodder, inn-keeper, merchant, surgeon's assistant, laborer, cook, a shoemaker's wife, an artisan's wife, and a woman without definite occupation. We must admit that among a similar class of people we would scarcely find less than thirty per cent. who abuse alcohol. Consequently; the percentage of those among the cirrhotics who abuse alcohol scarcely exceeds that among healthy persons of the same class.

Of the five persons who might be said

* From Archives Generales de Medicine. Translated and condensed by A. L. Benedict, A.M., M.D., Lecturer on Digestive Diseases, Dental Department, University of Buffalo.

to abuse alcohol, there are only three whose abuse is carried to high degree, and, curiously enough, in these three cases the hepatic and abdominal symptoms are unimportant. With the peasant, for example, (aged fifty-nine years) nervous symptoms were the most marked (a state of exaltation, extreme tremors, insomnia), while the ascites was very slight and disappeared entirely within five days after admission to the clinic. The liver was very slightly diminished in size and the spleen was not hypertrophied.

In the case of a women, aged fifty-one, without regular occupation, the symptoms were cardiac, and on admission she had no ascites, but it had been present six months earlier. The disappearance of ascites on treatment in another hospital and other symptoms, showed that the ascites depended on a failure of cardiac compensation. The liver is perceptibly enlarged—a fact explicable as part of the same mechanism.

In the most marked case of alcoholism—the merchant, aged thirty-two, whose mother had when he was six years old, begun giving him daily two teaspoonfuls of *eau-de-vie* for his health, and who has drunk a bottleful a day since the age of fourteen—there were symptoms of delirium and of multiple alcoholic neuritis, but a merely incipient cirrhosis of the liver. In the history ascites is not mentioned, and on admission there was only a slight amount of fluid, which soon disappeared. These cases support the proposition that alcohol has no more action on the liver than on other organs. We must bear in mind that the latest and most carefully conducted experiments on animals, have not given a single result in the way of producing an alcoholic cirrhosis. (Strassmann, Aphonassiew, Kahlden.)

Let us now investigate the other etiological factors in the production of cirrhosis of the liver,—syphilis, malaria, etc. These are as follows:

Artisan's wife,—dwelling in a damp basement.

Surgeon's assistant,—a series of acute affections; three weeks of malaria twenty-two years previously; typhus thirteen years ago; during the last seven years, frequent attacks of dry bronchitis. In clinic, there was found a very slight specific lesion at the apex of the lung, and a dry cough without mucus. During his sojourn in the hospital, his temperature very rarely rose two or three tenths, above 37° C. (98.6—99. F.)

Workman,—malaria ten years before; cold and damp dwelling. His cirrhosis was atrophic.

A case in which the use of alcohol was moderate,—rheumatism.

A similar case, — painful mental conditions.

The etiology of hepatic cirrhosis is very similar to that of numerous other diseases. We must conclude that every external evil influence can become a cause of cirrhosis, and that the same evil influence can become the cause of an entirely different malady, or may exist in perfectly healthy persons. We must, therefore, suppose an internal cause or predisposition, acting with the external cause. Ordinarily it is the organism as a whole that is in a state of greater or less vulnerability, according to the greater or less activity of the vital processes. However, all the organs do not participate in the disease to the same degree; such and such an organ presenting a high degree of susceptibility, while another is scarcely affected. Rarely, however, is a single organ diseased. In the particular class under discussion, it is very uncommon to find a cirrhotic liver with no other organ diseased. It must be noted that, owing to the compensatory power of the various organs, there may be a history of health up to an age considerably later than the time of the beginning of the lesion. We must bear in mind in estimating the beginning and the course of the case of hepatic cirrhosis, that the disease antedates, by far, the appearance of ascites, which really marks the beginning of the end.

In five of the cases, there is evidence of hereditary influence. The janitor, aged thirty-nine, was the next to the last child of a man who was a great drinker. Before his military service his health was fair. During his military service in the Turko-Russian war, while about Mt. Caucasus, he had malaria, an acute nephritis and a return of the malaria which, in spite of medical attendance, lasted till after the close of the campaign. After his recovery he settled in Moscow, obtaining a position as janitor—a great change from his peasant life—and married. He had been addicted to no excesses, and did not begin

to drink even moderately, till he was thirty. There was nothing unwholesome about his life except that it was not what heredity and habit had fitted him for. At thirty-nine, three years after the beginning of ascites, he presents a well-advanced cirrhosis.

Case 2. The father and mother of the shoemaker's wife were heavy drinkers, the father having shown œdema of the legs and face for several years prior to his death, which, at the age of fifty-five, occurred suddenly in the street. The mother developed ascites six months before her death. Of twelve children, only three remain. The patient from an early age showed the influence of bad heredity by weakness. Married at eighteen; the first sixteen years of her married life were pleasant enough and the use of alcohol was very moderate. During the last four or five years her husband has taken to drinking heavily, their losses have been severe and she has been greatly depressed. She has had ten children. Here, the external conditions really seem insufficient to produce such troubles as cirrhosis of the skin, a considerable decrease of tissue change throughout the organism, enteritis, arterio-sclerosis and, finally, cirrhosis of the liver badly compensated for; and all this at the age of thirty-eight. In this case better than in many other examples, we can recognize the rôle of hereditary weakness of the system; the hereditary predisposition to various maladies in the development of such and such extrinsic lesions and, in particular, of the congenital predisposition on the part of the liver. It is interesting to note certain anatomical indications of degeneration in the great toes; the metatarso-phalangeal articulations forming a boss on the inner side of the foot. The same anomaly occurred in the father and the oldest brother of the patient. Of her ten children, only the three oldest survive and all of these are in a satisfactory state of health.

Case 3, was that of a noble lady, aged twenty-five. Her father was syphilitic; several ancestors on the mother's side had died with heart disease. From early childhood there was a history of bad health, including diarrhœa, anæmia, furuncles, abscesses, arthritic pains, headaches, etc. She was married four years ago. Three years ago she had an attack of acute nephritis and, the same year, a miscarriage. Otherwise she has remained sterile and showed by the lack of development of the breasts, the anteflexion of the uterus and the conical cervix a failure of maturity. On the foundation of the hereditary syphilis, there was the arthritic diathesis with the cachexiæ mentioned.

Case 4, was that of a laborer with well marked cirrhosis at twenty-eight. His father is a heavy drinker; his mother and a sister died of phthisis; he is the only survivor of six children, the rest having died at an early age. At ten, he had malaria lasting four or five months and recurring occasionally. At the autopsy, it was found that his heart was of only half the normal size, and the liver weighed but 950 grams. This could not be explained solely by the cirrhosis, which involved only the left lobe. There was a genuine failure of development of both heart and liver.

Case 5, was the case of the surgeon's assistant, aged thirty-six. In spite of the absence of alcoholism, he presented an imperfectly compensated cirrhosis of the liver, enteritis, hemorrhoids, emphysema, dry bronchitis, an incipient tubercular lesion in the apex of the right lung, a considerable cutaneous cirrhosis and arterio-sclerosis. A considerable degree of anæmia developed during his stay at the hospital. All this is inexplicable if we bear in mind the external causes only, but it is readily explained by the heredity. His father is a heavy drinker; his mother, after aborting once, as delivered of three children. One was addicted to onanism and died of phthisis at the age of twenty-three; the second is a woman of forty, at present in bad health, with a chronic cough and nervous symptoms; the third is our patient. In the history we note a succession of acute diseases and rheumatism. In short, a predisposition to all sorts of inflammatory processes.

In the following cases heredity is not established as a cause of the hepatic disease.

Case 6, is that of the binder, aged thirty. He shows cirrhosis of the kidneys, vessels, myocardium and lungs, as well as enteritis, œdema of the lower extremities and considerable anæmia. Though married, he has no children. Regarding his parents he can give no definite information, but the existence of a hereditary weakness is manifest.

Case 7, is that of the inn-keeper, aged forty. At twenty-five he was a coachman; for the last several years he has enjoyed prosperity. Yet, at forty, he is an invalid, worn out, emaciated, with a considerable emphysema, a confirmed cirrhosis badly compensated, with slight œdema of the malleoli and with arterio-sclerosis. The external causes, including the use of alcohol, are insufficient to explain his condition. We must recognize a constitutional enfeeblement of congenital origin. At eleven he had an inflammation of submaxillary ganglia with suppuration. He married at the age of eighteen and had four children, of whom three have died at an early age. By a second wife he has had three children, of whom two are dead. During his entire life he has been subject to indefinite rheumatic pains. Although we may recognize the causative action of alcohol in his affection, we must also bear in mind that from the age of fifteen he has lived a life entirely different from that of a peasant for which heredity fitted him, and that he has had a superabundance of nourishment and an almost complete absence of physical exercise.

Case 8, is that of the woman without definite employment, aged fifty-one. She has a universal atrophy, including cirrhosis of the liver and kidneys, emphysema, sclerosis of the skin and endocardium, and an arterio-sclerosis of high grade. Thirty-six years ago she had a six months' attack of malaria; fifteen years ago, two acute attacks; she has used alcohol moderately since the age of twenty. As a child she was sickly, and had much trouble with intestinal worms, which cause no serious trouble in a healthy person. At fifteen she had anæmia with headache, vertigo, etc. For the last four years of her life she has lived in a cold, damp place, without means to support herself in comfort. Her organs were evidently in a diseased state when she began her life of poverty, the hard conditions of the last few years serving to bring the symptoms into prominence.

Case 9, the wife of an artisan, forty-one years of age. From her nineteenth to her twenty-seventh year she lived in a basement; at the age of thirty-four failure of compensation was evident. Her condition is that of Case 6, with the addition of colitis and pleurisy with marked dropsy. A congenital enfeeblement is apparent; at fourteen, after her second menstruation, she had acute nephritis; while during her abode in the basement she suffered from continual headaches. Toward the end of each pregnancy, her feet would swell. Pregnant ten times, she aborted five times, and of the five children born alive, two died early. She states that the other three are alive and well. She had sixteen brothers and sisters, of whom twelve died early, and another at thirty-four of an acute mental disease. Evidently the family is tending to become extinct in one or two generations.

Case 10, is the merchant, thirty-two years of age, already referred to as having abused alcohol from an early age. His brother is also a drunkard, and this fact points to a hereditary weakness. His symptoms showed themselves only a year ago when a sudden reversal of fortune, in which he lost about $20,000, was almost immediately followed by loss of compensation. In addition to the hepatic trouble, he has cirrhosis of the kidneys and a moderate arterio-sclerosis.

Clean Thermometers.

Those who are constantly preaching the germ causes of disease are the very fellows who many times are equally as careless as their unbelieving friends. How frequently do we see physicians take the temperature of their patients, regardless of the existing disease, wipe the instrument with their handkerchief, which is the most liable linen to be full of germs, or a towel, or even use the sheet, and carefully place it away in a case prepared with a small amount of absorbent cotton in the bottom to keep from breaking, and unintentionally preserving the germs from time to time, to be conveyed to the next unfortunate, who may be the first patient called upon. This seems to be a very simple thing to discuss, but any reasonable person can readily see the necessity of having his thermometer thoroughly cleaned every time it is used. It should be washed with soap and water, and if any cotton is used in the botton of your case, let it be sublimated cotton and occasionally renew it.—*Charlotte Med. Jour.*

Ice applied to the external genitals (the scrotum in men and the labia majora in women) controls epistaxis and hæmoptysis.

PRECAUTIONARY MEASURES AGAINST PUERPERAL CHILL.

M. F. McTAGGART, M.D., NAPA, CAL.

Considering this subject, the questions present: How far are we justifiable in employing measures for the prevention and elimination of septic deposit during and immediately after parturition? Should intra-uterine injections be resorted to?

Regarding the "Germ Theory" as a logical basis for provisionary expedients against disease; drawing deductions from accumulated knowledge resulting from scientific investigation of the existence of bacteria; accepting the postulate pursuant to the greater mass of the medical profession, that bacilli engender and propagate all infectious and contagious maladies; we are only moving upon the plane from which we receive the impetus, when we resort to intra-uterine injections immediately after childbirth, and such other methods as shall here be advocated to preclude the danger of septic infection during the puerperium. In doing so, I am conscious of the fact that I conclude and act against the brunt of much opposition; though with some concurrence of the best medical authorities.

We have either to consider the element of putrescence as a living germ, *i.e.*, that it is an established fact as such, or we must deem it out and out a nonentity. That it is not the latter, is evidenced by overwhelming proofs of its prevalence in every sluice of contamination. Science tells us it is everywhere. No part of the parturient room, carpets, drapery, bed or sheeting is exempt from it. It is on all parts of the body and is in the vagina.

In the face of these facts, many able physicians, while admitting the truth of the dictum, dispute the propriety of the very remedies or proceedings that are most liable to reach or exclude them, basing their objections upon the suspicion that the benefits to be derived by the precaution will fail to compensate for the injuries that such treatment is liable to produce by acting as an irritant or foreign substance. While others who are convinced of the utility of some such radical measure as a preventive of sepsis, are slow to recognize its application because of similar apprehensions.

We know, however, that when debris of any kind is pent up in the womb, it forms a nucleus for germs, whether it be a portion of placenta, blood-clot, or serum held in the contractile tissue, or whether it be extraneous matter conveyed by the fingers of physician, nurse, or other medium; and that chills, fever and all the symptoms of blood poison, or rather septicæmia supervene. Then it is that the womb is invaded with impunity through forcible dilatation, with thorough drenching and even curetting, with marked benefit. The patient receiving considerable punishment at a time when her life is already menaced by a very exhausting disease. Why then, immediately after delivery, when the uterus is uncontracted, when impurities are being thrown off, when all conditions not only invite but facilitate precautionary steps, why then should we hesitate, upon a mere suspicion of its influencing the mother unfavorably, to avail ourselves of a recourse that should prevent subsequent danger of such grave import to both mother and child.

It has been my practice to act according to the belief that no measure should be ignored nor neglected that gives reasonable promise of immunity from so serious a *morbus* as septic infection; and I am warranted in declaring that every effort in that direction has been requited with ample success. Any one who has met with the accident of puerperal chill—we will call it accident, but I am not sure that it does not deserve the name of criminal negligence—will readily concede the need of more efficient prophylatic measures than those that are usually brought into requisition by the medical profession.

So soon as Koch's developments became patent to science, they were greedily clutched by every aspirant to medical honor. Not so much because of logical presentation, but because the resources of medicine seemed deficient and its achievements offered little more than disappointment or mortification when confronted with grave and serious disorders. The theory seemed possible and the bare possibility offered,

it was hoped, an additional means of accounting for many obscure diseases, as well as suggestions with a trend to save life.

Now, admitting the existence of bacteria as an invulnerable theorem not needing props from any quarter to substantiate it, we recognize the propriety and *absolute necessity* of resorting to such measures as will prevent invasion by them or will destroy them when present.

On going to the chamber of the parturient women, if there be time before the child is born, the nurse is instructed to thoroughly drench the vagina with creolin, lysol, or other sterilized solution, in every part that the syringe can reach by various shiftings of its position. If my presence is needed because of threatened delivery, I frequently repeat this process myself with water as hot as the patient will bear, until the presentation of the vertex implicates danger of flooding the face, which must be carefully guarded against. By this operation the parts are cleansed; the contracted or rigid cervix is dilated; the perineal muscles are relaxed —hence greater protection against laceration of cervix and perineum is secured. It many times prevents the employment of chloroform—which by the way is an excellent agent and one we do not hesitate to use—but by this means its requirement is in many instances avoided, and therefore its unpleasant after effects, which, in some cases, retard the recovery of the patient, or distress her, are obviated. It insures to the parturient a safer accouchment, relieves pain, comforts the mother and secures to the infant exemption from sore eyes—a frequent result of vaginal infection.

Further, it liberates placental adhesion through the engorgement of the utero-placental arteries by reason of liberal application of heat, and their subsequent contraction, a resultant of its discontinuance. Thus facilitating the removal of the placenta, it is more liable to be expelled intact and with much less risk of post-partum hemorrhage. After the expulsion of the placenta to make sure that the uterus shall contain no element of infection, a finger, or hand if necessary, is passed to explore and dislodge, and the organ is then freely flushed with hot antiseptic solution. I use a "Kelly" rubber apron if possible, from the beginning of active labor to its completion, with a view to keeping the patient's robes and bed clean during the whole process, and to leave her so when all is done. This effected, the genitals are dressed antiseptically by cleansing, drying and applying medicated cotton pads. The nurse is instructed to change the dressing and to douche the vagina frequently; occasionally finishing with a large cup of strong coffee as a deodorant and stimulant. This keeps everything sweet and promotes functional activity of low intra-vascular pressure.

Where all the proceedings detailed for conducting accouchments are efficiently carried out, I am satisfied from experience and observation that puerperal fever, eclampsia and the need of forceps, become far less frequent. Besides the mother is not only shielded from the danger of infection, but if lacerations have occurred they will be less in extent and with greater certainty of healing. But unless the hands and everything which comes in contact with the maternal organs be scrupulously clean, such a process will fail of accomplishing the hoped for results. If microbic manifestations appear we have to employ the most active agents the tissues will tolerate to obliterate them. To illustrate the necessity of strict attention to the requirements mentioned, I cite from my notebook, out of many instances, but three cases which, perhaps, will suffice to indicate the merits of the proceedures urged and will attest the value of prompt action in emergencies.

A lady, age thirty-six, mother of three children, had been confined by a midwife two weeks prior to my being called to her sick-bed. I was summoned in haste. I found her with a temperature of 105°. She had no pain. Breasts were yielding thick, green milk, which induced vomiting and enteritis in the infant; respiration was labored; pulse soft and compressible; tongue furred and dry; bowels torpid and urine heavily charged with urates. She thought she had been making a good recovery until within the last three days. Chills, fever and lethargy preceded by insomnia has dictated the need of a physician. Digital examination of the uterus disclosed nothing abnormal; but feeling confident that the cause lay in that organ, the cervix was dilated and a small, fragile, foul-smelling portion of placenta was dis-

lodged. The womb was thoroughly irrigated with peroxide of hydrogen (15 Vol. diluted one half with water) the irrigation being completed with a strong infusion of coffee. In two hours the temperature fell to normal. Second day temperature rose to 101.3°. Irrigation was repeated with creolin solution and the temperature fell to normal. The lavage was continued three days longer, the temperature remaining normal, and patient made a rapid recovery.

Case II.—I was called in consultation to a mother of seven children. Infant was three weeks old and feeding from the bottle. The attending physician admitted having used no special precautions during accouchment, but assured me that the placenta had been removed entire. Her temperature was 103.5°. The breasts were inflamed and nodulated. There was tenderness of the abdomen, and a heavy fetor from the vagina. As we could detect no other cause, it was at once referred to a septic uterus. The cervix was dilated, resulting in the disclosure of numerous minute, friable fungoids adhering to the endometrium just above the os internum, and from which issued a puriform discharge, with an intolerable odor. The uterus was thoroughly irrigated, then curetted and all debris completely flushed out. In a few hours the temperature fell to normal, never rising thereafter but twice. A lavage once a day was kept up for five days, and the patient was up on the seventh day after I was called.

Case III.—A primipara, aged nineteen. Eleventh day after delivery I was summoned by her physician and found temperature 104°; headache; breasts swollen, caked and very painful; cervix and perineum both lacerated. The bowels had judiciously been kept open with aperients. The uterus was tender to the touch, as was also the abdomen, and was suggestive of peritonitis, while the lochial odor was very offensive. Without dilatation, the irrigation, as in the former cases, was resorted to with like results. The lacerations would not heal, however, and were afterward repaired, requiring two different sittings for the operations, the perineum being torn through the sphincter.

In these instances—and I have notes of others, perhaps of greater significance, urging a place in this article—no special care had been taken to protect the patients from infection. There was no possible doubt that septic deposit was the sole element of disturbance, since antiseptic treatment of a radical nature so promptly proved the remedy to save the patients. I know it may be urged, and it is, that many confinement cases do well without any such provisions. In fact, where everything has seemed unfavorable, even to the extent of placing old, dirty rags, portions of soiled quilts—a nest for germs—and all sorts of refuse cloths under the sheet of the woman to absorb the "muss," as is often done. At the same time it may be noted that those cases were in a condition of health to resist the encroachment of microbes, and that a delicate organization or a diseased constitution is more liable to furnish a nidus for bacteria, than a healthful one, and not knowing just where to draw the line of demarcation between such health and disease, it were better to use such precautions in all cases, than to sacrifice one life in a life-time of practice by an omission. It is important that the nurse, too, be instructed relative to these matters, and in leaving a case of confinement or sickness that she should bathe her person in antiseptic solution, fumigate* her clothes and give especial care to her hands. Unfortunately, in families where cleanliness is subservient to the conditions of poverty, the best efforts of physician and nurse may be frustrated and successful results be impossible.

Papain for Tapeworm.

Roberts Bartholow (*Med. News*) reports a case in which, after failure of the usual remedies for tapeworn, a parasite twenty-five feet in length became dislodged and was passed after the use of papain, in ten-grain doses, three times a day after meals. The worm had not undergone solution, but Bartholow thinks the drug had exerted a toxic influence upon it.

* The fumigation may be done by burning a teaspoonful or more of buhach powder on an iron shovel, and under the garments in a closet. This kills all of lower forms of life. A house may quickly be cleared of mosquitoes by burning a little of the powder in the rooms. These insects swell up and die. Flies are not so affected by it; they become intoxicated, however, and drop to the floor where they may be swept up. One of my routine preliminaries in fitting a room for operation, is this fumigation. Touch a lighted match to the powder and it will burn steadily till consumed. The odor is not offensive, nor is the smoke intolerable.

PRACTICING MEDICINE.*

J. McF. GASTON, M.D., ATLANTA, GA.

The invitation of our president to relieve him of a part of his onerous duties on this occasion was accepted in view of the fact that he had labored incessantly during the closing session of our college, not only filling his own hours, but taking the hours of every other member of the faculty who would consent to yield the time to him. I am under special obligation to him for taking my place while I was off duty for a month suffering from the despotic grasp of the grippe.

The great controlling influence with me was, that my venerable chief would be relieved of his burden by a younger member of the faculty. He and I were students together many years ago at the University of Pennsylvania; but it should be remembered that he was one of the oldest and I was one of the youngest in the class. Thus it turns out that with the motto, "*Virtus in arduis,*" he is working still, under the accumulation of years, flesh and honors. In the meantime I am renewing my youth with the multiplicity of various duties devolving on me; and we are both striving, in season and out of season, to keep up with this progressive age and our youthful colleagues.

A comparison of the facilities for medical education half a century ago, which passed under our observation, and were noted by us in due form, with what preceded that era, and what has followed, may prove profitable to the graduating class.

My limited time was to be occupied with a strictly professional view of this period, as my distinguished friend who was assigned the duty of making the general address on this occasion, was expected to afford a feast of reason in discussing matters of general interest to this intelligent assembly of ladies and gentlemen. A large proportion of those here to-night have undoubtedly been attracted by the reputation for erudition and eloquence of the Hon. W. C. Glenn, but indisposition prevents his appearance this evening. Not being capable of entertaining this audience with the rich cullings of literature, I shall content myself with briefly noting some matters for the guidance of those who are about to enter upon the practical work of treating the ills which flesh is heir to in this world of pain and suffering.

It may not be out of place at the outset to note that our small list of graduates on this occasion is due, as already stated by the Dean, to the inauguration of a three years' course of lectures, with six months for each session, for graduation in the Southern Medical College.

Formerly our students received the degree of M.D. after two sessions of five months each, and by great diligence and painstaking many of them have attained a fair measure of proficiency in their preparation for the practical work of the physician. But it is evident that by a graded course of three years, in which the first session is devoted chiefly to rudimentary branches, that more satisfactory progress is made subsequently in the higher order of medical education.

The old fathers of medicine in by-gone days, such as Hippocrates, Boerhaave, Galen, Harvey, and their followers, were supposed to know all that was available of the curative art, and, indeed, gave a stimulus to subsequent investigators of great importance. But their work reminds me of a Thompsonian practitioner who flourished in my section during my boyhood days. He had a mania for doctoring his patients with lobelia and cayenne pepper, while they were immersed in hot water baths, in the presence of an old negro woman, who became quite an adept in all the details of the practice. On one occasion when Toney, the husband of the woman, was expatiating upon her great achievements, he remarked with emphasis: "Bless my soul! Mars Dan'l done teach Fanny more than he knows hisself." So it was with those old worthies of early times; they taught the generation which succeeded them more than they knew themselves. At that period all was empirical in medicine, and little was at-

*Address to the graduates of the Southern Medical College, April 8, 1895.

tempted in practice which did not have the sanction of high authority. But gradually the professional dictum came to be set aside, and the physician began to look around him for new fields of investigation. With Harvey's discovery of the circulation of blood a new light dawned upon the medical world, and the fact was impressed upon the observers of results that they were not bound down by the records of the past. Independence of thought and action led to individual investigation; and "thus saith the record" was replaced by a large accumulation of observations in the different fields of medicine.

In the course of events there came forth Bell, Sir Astly Cooper, Goode, Cullen, Marshal Hall, Velpeau, Physick, Valentine Mott, and others no less original and progressive in medicine and surgery.

Among the earliest organized movements for promoting medical education in this country stands the time-honored University of Pennsylvania. It was my privilege to receive instruction there from Chapman, Horner, Jackson, George B. Wood, Gibson, Hodge, and Hare, who were held in high esteem by the large class of students who attended their lectures at that early day.

This was the medical Mecca to which pilgrims flocked from all parts of the United States, and also from other portions of the world, being the great center of medical instruction.

Being impressed with the vast field for advancement in medical knowledge offered at Philadelphia, yet with that State pride which predominated in everything at that day, I was influenced to return to the Medical College of South Carolina to take my second course of lectures, and receive my degree of M.D. A faculty no less distinguished than that of the University of Pennsylvania filled the different professorships at that time in Charleston; and the faithful teaching of Dickson, Geddings, Holbrook, Moultrie, Prioleau and Shepard are vividly recalled by me. In purity and eloquence of diction, the lectures of Dr. Dickson on the practice of medicine have never been excelled; and he was afterwards called to fill the same chair in the Jefferson College of Philadelphia, sustaining fully his high reputation.

Notwithstanding the celebrity of these distinguished professors, which placed them far in advance of the false theories and vain speculations of olden times, it is evident that they had utterly failed to grasp all the principles which lay at the foundation of true progress in teaching.

The advances which have been made in the past fifty years in all departments of medical science, are so stupendous, that should a professor of any branch taught in the curricula of that period be called forth to observe the course of instruction in the better class of our schools, scattered broadcast over this vast field of progressive education, he would stand aghast at the advancement. If the attainments for graduating with the title of M.D. formerly, were compared with the achievements of those receiving the degree of M.D. from our schools of high grade at the present day, the latter-day graduates would be proved to have far greater proficiency in all that pertains to the discharge of their professional duties. I don't hesitate to say that a sufficient number of graduates from the Southern Medical College could be selected each year to fill the professorships in every department more satisfactorily than they were filled by those holding these chairs fifty years ago. Yet it must be remembered that you are only upon the threshold of true progress. If any of us have gained recognition in the medical profession, it has been by dint of diligence in study after graduation, and I would urge upon each of you higher efforts after graduating.

It has been found most conducive to progress in practical attainment for the graduate to spend the first year or two after receiving his degree of M.D. as interne of a well regulated hospital, and these positions are considered so desirable, that some of our medical colleges make the assignment as internes to a hospital, prizes for those who have the best records upon examination. The importance attached to the advantages of securing these appointments is manifested in the number of graduates from our college who have been assigned to duty as internes in the Grady Hospital. My advice to the members of the present class is that any of you who can make it convenient to spend at least one year in this work should take the requisite examination for securing one of those places. I am pleased to note that the Grady Hospital is a well conducted institution.

The grand element of advancement in knowledge offered by the Polyclinic or Post-graduate schools, should enable every new-fledged doctor to apply the instruction which has been received in the medical college, and those who graduated under the old regime had not the facilities for the practical observation of the treatment of medical and surgical patients which are presented in the well organized and splendidly equipped hospitals of the present day. While much has been accomplished by faithful working in laboratories of different kinds and by experiments upon living animals, for the elucidation of biological problems, accurate observations of the progress of disease in the human subject and making records of their data for future reference is far more important to the practitioner.

It is desirable for the graduates to realize that, in receiving their diplomas, they have not learned all that is requisite to acquire for the practice of medicine. In other words, they do not know it all, and it is important that they should know their ignorance. It is thus essential to get a certain amount of knowledge to understand your shortcomings, and to appreciate what further must be learned to fit the graduate in medicine for the proper exercise of his professional duties. You are taught in college all the fundamental principles which are requisite for the degree of M.D., and to qualify the physician to enter upon his work in accordance with the laws of the land. He is fitted thus to take charge of the treatment of cases of diseases, and yet he must inform himself as to what has been done by others under similar circumstances.

Some of you may have read the record of the experience of the lamented Dr. Marion Sims, upon first entering upon the practice of medicine, and his trials and tribulations in undertaking the treatment of his first patient. We must presume that he was well equipped with the teachings of the professor of practice in the medical college where he received his degree of M.D., and yet he was at sea completely in applying this instruction to the case in hand. After reading all the books which were available, his mind was in a state of confusion worse confounded, and he called in an experienced practitioner, to help him out of his dilemma. With similar results in other cases, he became so much disgusted that he resolved to leave that location, tore down his sign, and went to another section of the country. His efforts, after leaving South Carolina, and going to Alabama, were crowned with more success, and, by perseverance, with close application, he ultimately attained such distinction, as to be unequalled by any other member of the profession, at home or abroad.

This affords encouragement to all who may encounter difficulties at the outset, to redouble their energies in overcoming the obstacles which may be encountered, and to continue their studies by reading the best authorities in the different departments of medicine and surgery, after entering upon the practical work of treating diseases. Not only should you study books, but observe closely the practice of experienced physicians, and elicit all the information possible, by getting their advice in consultation. It will not suffice to note the practice of others, but the graduate should study his own cases, and read every available book upon the disease under treatment, so as to select the very best remedies for the case in hand. All the accumulated experience of the best authorities in medicine and surgery is printed in a condensed form, for the information of the members of the profession, who are entering upon the untried field of practice, and you should not grope in the dark, when the light may be turned on, by simply opening the appropriate volume. Do not fail to exercise your rational faculties in determining what is best to do, after you have consulted the highest authorities in the matter under consideration, and each must be his own judge for the occasion.

In a consultation, a few years ago, with a prominent practitioner, who had been engaged several years in the duties of his profession, he remarked to me that he envied my experience as a physician and surgeon. In reply, I told him that all which had been acquired by observation, during a rather eventful life, would most cheerfully be exchanged for the chance to know, with his age, and the opportunity to profit, in future years, by what has been recently brought to light.

You have, then, not simply to pluck the fruit which is ripe, but to take advantage of the growing crop, to reap a magnificent harvest in the future. What

those who have gone before you secured by hard work, by day and by night, is laid before you, to be turned to account in the developments of the near future.

The gradual but steady enlargement of the field of medical investigation, corresponds to the tension of a watch spring, which sets out with a small coil, and by subsequent turns, grows larger and larger, and extending from the outer circle, it is connected with the intricate machinery to keep it in motion.

The developments, have gone forward, in the past two decades, with a rapidity which encourages the belief that still more valuable accessions will be made to our practical knowledge, within the next quarter of a century, and those members of the profession are to be congratulated who may have the satisfaction of observing the fully-completed work of this period. The triumphs of the surgery of the brain, the thorax, the abdomen, and the vascular system, will most probably be overshadowed by the magnificent advances in other branches of medicine and surgery.

The interminable list of remedies within easy grasp of the physician by the tact of manufacturers, continues to grow from year to year, and the diagnosis of diseases, through the implication of the nerve centers promises good fruits for the practice of medicine. But the present interest in bacteriology manifested by investigations of the laboratory and by clinical study offers the best prospect of working out good results of a practical nature at no distant day. The relation of cause and effect has, thus far, not reached a point which enables the pathologist to trace certain disorders to a bacterial origin, and the most that can be claimed is the connection of specific forms of disease with definite organisms or with microbes of a distinctive character. But there is hope for the future of bacteriology.

It is a gratifying reflection for the medical philosopher and scientist to point out the separate germs of the various disintegrating processes involved in the aggravated condition of wounds, and to define the special microbes of distinct diseases; but the practitioner is not always prepared to accompany the bacteriologist in such investigations, nor does it devolve upon him to accept the conclusions from his investigation for the application of remedies in surgical cases. After a somewhat careful research of what has been accomplished by the use of the microscope in detecting the different forms of micrococci and noting the discrepancy in the observations of different experts in this department, I am still in doubt as to the role of bacteria. But I am convinced that such micro-organisms and ptomaines have a share in the degeneration of vital structures.

My attitude in regard to the germ theory of diseases has not always been properly understood, but I wish it to be known that the results of investigations with the microscope are fully appreciated, and that the observations of those who are experts in the use of this instrument are accredited as realities. There is no doubt in my mind of the existence of the comma bacillus in cholera, the bacillus tuberculosis, the cryptococcus xantogenicus in yellow fever, the anthrax bacillus in malignant pustule, and other specific germs which have been recognized as accompanying various other forms of special diseases. But this is quite distinct from the proposition to combat these diseases by the use of germicides or to employ agents of this class as prophylactics against the development of disease.

I am on record as stating that all the practical appliances of surgery may be appropriately classed under the headings of Aseptic, Antiseptic and Septic processes. The first embody all those measures which come under the class af prophylactics, and look to the avoidance of hurtful agencies, thus being assured if the measures does no good, it will do no harm. As the term implies, asepsis consists in shunning all kinds of contamination from within and without the body. Antiseptic application in surgery differs widely from aseptic measures in their aim and results. The practice of antisepsis is confined to correcting any tendency to or the development of degeneration and disintegration of living structures, and yet the claim for antiseptics includes measures which, instead of protecting the tissues, lead to septic development.

The employment of antiseptic vapors to correct the supposed vitiated condition of the air surrounding a patient, has long been exploded, having received its death blow from Thomas Keith, at the meeting of the International Medical Congress, in London. Antiseptic washes in operations upon normal tissues have been abandoned

by many who formerly used them, while a large number of the profession, like myself, have never employed them, and are sustained by reports of the most advanced bacteriologists, that they are not simply innocent, but hurtful, by necrosing the healthy tissues. It is held that antiseptics should be reserved for those cases in which septic processes are to be combatted, and that antiseptic surgery ought to be limited to cases presenting septic conditions. Aseptic surgery has supplanted the so-called antiseptic surgery, in most surgical cases.

In accordance with the accredited doctrine of the Rev. John Wesley, that "cleanliness is next to Godliness," the medical profession has adopted the most stringent regulations against filth of every kind, and eschews dirt in all its forms, in surgical procedure, and in the regime of the sick room. Not only is the surgeon and physician, as well as the nurse to be scrupulously clean, but everything about the patient and bed must be kept clean.

The funeral procession of so-called antiseptic surgery is accompanied by a host of mourners, headed by Sir Joseph Lister, and the last rites of the solemn service at the tomb are to be conducted by a white-robed priest of the order of Esculapius, who with clean hands will lay the defunct body to rest, in everlasting oblivion. "*Requiescat in pace.*"

COMMUNICATIONS.

REFLEX IRRITATIONS.*

SAMUEL AYRES, M.D., PITTSBURG, PA.

There are many interesting problems connected with reflex irritations, the correct solution of which would make us Masters of our Art. The ability to recognize, and then to remove, the causes of remote disturbances in the system, would be so desirable to possess that, were one so endowed, his power of healing would be little less than that of the gods.

It seems curious to me, in view of the great importance of this subject, that there is no distinct treatise in the English language, and so far as I know there is none in any other language, containing a philosophical analysis and interpretation of reflex irritations, based especially upon clinical and experimental research. Where, for example, can we find a convincing explanation of the mechanism of production of the vertex pain, or the palmar heat or wrist pain, said to be caused by uterine disease?* On all sides the expression *reflex irritation* is used by medical men; perhaps too often in a nebulous sense to conceal ignorance, or to change the subject—perhaps often in a correct manner, but without a real conception of the mechanism involved. Indeed the term has well nigh become an oppobrium to our art.

It would be well at the outset, it seems to me, to have a clear understanding of what is conveyed by the term "reflex irritation." I believe it is agreed to mean an irritation at some point of the body, internal or external, such as an injury, a foreign body, a pressure, or, indeed, a lesion of any character, which produces a disturbance, or pain, or disordered function at some other part of the body, usually considerably removed from the original point of irritation. The primary irritation is to be regarded as the cause and the reflex irritation or disturbance as the effect. Two elements are therefore always present. It will not be forgotten of course, that reflex acts and influences abound in countless numbers throughout the body; indeed this is an organic law of our economy. But these physiological reflexes, such as the contraction of the heart from the stimulus of blood; the peristalic movements of the intestines from the presence of their contents; or the ac-

*Read before the Allegheny County Medical Society, February 19, 1895.

tivity of glands from their accustomed excitants, are not referred to in the above definition. If the symptoms of visceral or other internal disorders were localized over, or in, the part primarily affected, there would be little difficulty in the study of reflex phenomena. We would merely have to search beneath the surface for the cause. But, unfortunately, this is not the case. Instead, there is a veritable labyrinth of nervous inter-communication and ramification, the irritation of some part of which may be transmitted to a distant region and exhibited as pain or disordered function.

But notwithstanding this complexity of nerve irritations and manifestations, may not the question be pertinently asked, whether there has not been in the last decade or so too much stress put upon reflex agencies in the production of disease? In other words, are there not many symptoms incorrectly attributed to distant lesions, or reflex sources; and, on the other hand, are there not lesions whose remote effects are not recognized or correctly interpreted? The first part of the paragraph naturally suggests local or constitutional causes of a disturbance as opposed to reflex causes. To illustrate: A person has pain, or numbness, or some abnormal sensation, in some of the fingers, or a part of the hand. Is the cause of this local, or is it a reflex from the bladder, or uterus, or elsewhere? Or, a poorly nourished girl has infra-mammary neuralgia; she also has menstrual pain and leucorrhœa; is her neuralgia caused by anæmia or by some uterine irritation? Thus we see that no matter which way we turn the subject is fraught with interesting phases. But let us be more specific. What class of irritation shall we first consider? Suppose we begin with the ocular.

It would be trite indeed to more than refer to the reflex mischief alleged to be set up by errors of refraction, muscular insufficiencies, irritations, or other defects of the eye. Headaches galore, occipital distress, frontal pressure, vertigo, nausea, epilepsy, chorea, insanity, etc. Do these symptoms, and still others claimed, actually result from this source? Will astigmation in the left eye, of one-half dioptre cylinder axis vertical and hypermetropia of two dioptres in the right eye, always produce a certain effect in a school teacher twenty-five years of age in ordinary health? Will they produce the same, or similar effects, in twenty women or twenty men, the conditions being about equal in all? Will they not often occur without noticeable effect? If so, why? The answer may be made that the human system is not a fixed quantity, and that such effects cannot be precisely estimated. True, but are there not enough cases of like character from which to deduce some law? Is there such a law governing these alleged reflex ocular disturbances? Will the ophthalmologists please enlighten us?

A few years ago, the startling announcement was made by a New York physician that chorea, epilepsy and insanity are functional nervous diseases caused by refractive errors, the relief of which, by glasses, would cure these disorders. A little later, this versatile physician shifted his position, or sufficiently stretched the margins to include muscular insufficiencies as further causes of these affections—hence tenotomies and prisms would cure what cylinders and spheres had failed in. The New York Neurological Society after a thorough investigation of the above claims, failed to substantiate them; and D. B. St. John Roosa, in a valuable paper entitled, "The Relation of Errors of Refraction and Insufficiencies of the Ocular Muscles to Functional Diseases of the Nervous System,"* completely exploded this theory. He states: "From an examination of 6,455 eye cases, defective muscular or refractive states do not necessarily produce even local disturbances, such as are comprehended under the term asthenopia, inflammation of the edges of the lids, etc., although high degrees of hypermetropia, and moderate degrees of astigmatism, and all cases of mixed astigmatism are apt to do so, sooner or later," But note, he does not say they invariably do. He farther remarks that asthenopia depends chiefly upon two sets of causes, nervous exhaustion and uncorrected errors of refraction. You observe he places a constitutional or general cause first.

In the *Lancet* of October 28th, 1893, H. W. Dodd reports 100 consecutive cases of epilepsy, their refraction and their treatment by glasses, in which he states that of the 100 cases 25 did not require glasses, so they were not prescribed. Of the remaining 75 cases, only 52 secured and wore glasses as ordered. Of these, 52,

*N. Y. Medical Record.

he says, 13 have had no fits since wearing the glasses during periods varying from one year to four months. Three cases remained in *statu quo*, and 36 have improved in a marked degree.

While some of these individual cases show surprising results and seeming cures by the removal of the apparent exciting causes of the attacks, the results are, on the whole, much obscured by the statement that in nearly all cases the usual internal treatment was continued some time after the glasses were ordered. Then again, the period of time of from four months to one year is not long enough to draw conclusions as to cure in epilepsy. It is a very common thing for cases to escape an attack for several months, or even a year, under large doses of bromide, and then relapse later.

Dodd in his summary uses this language:

"Given a certain condition of instability of the nervous system,

"(*a*) Errors of refraction may excite epilepsy.

"(*b*) The correction of the errors of refraction will, in combination with other treatment, in many cases cure or relieve the epileptic condition."

Thus, we see how conditional are his statements, and how uncertain are the figures here claimed; and how, in many of these neuroses, apparently cured by the relief of some peripheral defect, an unstable nervous system is the real lesion, without which the various reflex irritants would fall as harmlessly as drops of water upon a solid rock.

What as to the aural reflexes? We do not hear much of them. But can we not have ear strain as well as eye strain? The muscles of the middle ear, the tensor tympani and stapedius, are, perhaps, quite as delicate as the ciliary muscles. May they not be disturbed in their action, and produce ear strain? Here is a field, it seems to me, for some enterprising otologist. But we know that there are reflex irritations connected with the ear. For example, every one must have heard or experienced the cough that is often caused by pricking in the external auditory meatus, or by the presence of cerumen; and the vertigo and nausea of Meniere's disease are classical.

How shall we approach that prolific field, the nasal and naso-pharyngeal reflexes? It is an interesting one, and a sensitive area, too, as every one knows who has had a pledget of cotton covered with iodine, etc., swept over its mucous surfaces. This never fails to bring the tears, or redden the eyes, or provoke a sneeze—evidence at once of one of the most pronounced reflex upheavals of which the system is capable. What are the remote effects of inflammation of the nasal mucosa, of polypi, hypertrophies, exostoses, rhinoliths, deviated septa, etc.? Since the nasal fossæ are so richly endowed with sensory nerve ends from the first branch of the fifth pair, and from the glosso-pharyngeal and vagus; and since so exposed, they are obviously the source of much local disturbance, whether their reflex irritations are as far-reaching as is claimed is another question.

McBride in his work on "Diseases of the Throat, Nose and Ear," says: "There can be no doubt that at present there is an undue tendency on the part of specialists to seek in the nose, the starting point of various evils. Yet, it cannot be denied that even this position is preferable to stolid skepticism." This writer thinks that nasal polypi do sometimes cause asthma, as first pointed out by Voltolini; and that cases of migraine, nervous cough, supra-orbital neuralgia, swelling of the face, vertigo, and epilepsy are closely associated with conditions of the nose.

Von Stein states that functional affection of the heart, as palpitation and pain, may be caused by nasal irritation. Joel has related cases of œsophogeal spasm cured by nasal surgery. Hack describes a case of Basedow's disease relieved by cauterizing the nasal mucous membrane. Nocturnal incontinence of children has been traced to nasal stenosis by Ziem, Major and Block. Bosworth in his treatise on diseases of the nose and throat, p. 193, says he has seen a number of cases of chorea relieved completely and permanently by the cure of nasal disorders. Sollinger and Fincke report cases of epilepsy cured by treating intranasal disease, and Richardson mentions the case of a lady thirty-four years of age cured of epilepsy by the removal of a post-nasal fibroma. On the other hand, Moldenhauser states that he never met with a supra-orbital neuralgia or simple headache, from a nasal reflex, and Sajous

says exostoses in the majority of cases give rise to no inconvenience unless they extend across the fossa and compress the turbinated bone. Thus, we have the diverse views of different writers on this phase of the subject. What conclusion shall we reach? I fear the same elements of error and haste are to be found here, as in the alleged ocular reflexes.

A neurosis that has been apparently cured, or temporarily relieved by treatment of the nose is not necessarily of nasal origin. It may exist coincidently, and not be thus caused. McBride seems to get at the correct solution of many of these so-called nasal reflex neuroses, in his statement that irritation of the nose may change a nervous center from stability to instability. "Is there any valid reason why the reverse should not take place?" He says: "Is it not probable that, given an unstable nerve center, irritation of the nose may render it stable?" Thus he believes that the application of the electric cautery and other agents to the nasal mucosa often act as counter-irritants, and thus relieve in this manner. In other words, an equally good counter-irritant or derivative applied to the nucha, or temples, or elsewhere, would probably give the same results. In this connection, I may mention the case of Mr. S. as an illustration of the stress that is laid upon some of these reflex sources, as the fountain of all evil to the exclusion of the real cause. Mr. S. was a most afflicted man; mournful and melancholy, nervous, fearful and tearful; with head and body pains enough to satisfy the most enthusiastic specialist, no matter what his field. He had gone the round with the usual results. Sanitoriums, and their baths and waters, had been freely taken internally and eternally. In Chicago he had fallen into the clutches of those orificial fellows who discovered the cause of all his lamentations, and promised quickly to relieve him. His rectum was most effectually bored and ballooned, and his anus trimmed "according to Hoyle." But, not being relieved, he in due time landed in the office of an Allegheny doctor, who found his ills all due to some bones in his nose. These were sawed out, and still he suffered as before. In this extremity he came to see me. It was not a very difficult feat to discover that he was suffering from constitutional syphilis, and that this was probably the cause of many of his symptoms. The response to specific treatment, which he had evidently not received before, was altogether satisfactory, and most of his symptoms disappeared; but not all, for these cases rarely get entirely well, as you are perhaps aware. It was a matter of more surprise that there were enough bones left in his nose to saw out.

Another case which was under my treatment, and would by all precedent be regarded as a cure of epilepsy by the removal of the hypertrophied tissue on the turbinated bone, may be referred to. It was that of Mr. S., twenty years of age, who had been epileptic for six months; a fit every week or two without a very clear cause, though he came of a neurotic stock. While examining him I touched with a probe the inferior turbinated bone, when he immediately had an attack. I recommended the destruction of the hypertrophy, which was done under cocaine, and he has had no spell since, now more than two years; but I was careful to keep him on large doses of bromide for several months. I saw this man the other day and he says he has sensations in his head of threatened attacks. I do not believe the hypertrophied tissue was the real cause of his fits, and am satisfied if I had touched his eye, or occasioned any sudden pain, the shock would have originated the spasm, just as the sensitive nasal tissue seemed to do.

Turning now briefly to dental reflex irritation, we find numerous transferred disturbances from this source. There can be no doubt that, in weak, nervous children during early dentition, convulsions, vomiting, eczema, diarrhœa, and other troubles, result from this source. Occasionally the irritation from a decayed tooth, or inflamed dental nerve, is transmitted to the ear, producing well marked earache. Headaches apparently due to dental origin are said to affect chiefly the temples and occiput. How often, though, have we seen whole sets of teeth, and many of them sound, too, sacrificed to a mere suspicion that they were the cause of persistent headaches; when, in truth, the teeth were not in any manner responsible, as is proved by the continuance of the headaches after their removal.

The reflex disturbances of gastric origin are apparently so numerous that time

will not permit more than brief reference to them. The stomach being the center of a nerve plexus whose branches ramify directly or indirectly to every part of the body, it is not strange that, when disordered, it should originate disturbances at almost any part of the system. Its irradiations are transmitted chiefly through the two branches of the pneumogastric and the sympathetic nerves. The altered chemistry of digestion causing imperfect assimilation, and the usual train of dyspeptic disorders, does not correctly come within the province of our subject; for the absorption of these products of defective digestion, and their circulation in the blood, directly cause local irritation at any point of the body; such, for example, as joint pains, or headaches, from uric acid. A good illustration of reflex disturbances from this organ is gastric vertigo. The mechanism of this reflex is believed to be the following: The irritation from the stomach when overloaded is transmitted through the sensory fibres of the pneumogastric to the nuclei in the pons, and from there through other of its fibers which pass to the cerebellum. Since this organ chiefly presides over equilibration, a temporary disturbance of its function, possibly circulatory, occasions the dizziness. Reversing the direction of the irritation, we can readily understand the vomiting which often accompanies vertigo from central derangement of the cerebellum. We shall not stop to explain the frequent production of gastric vertigo through the close connection between the nulcei of the vagus and auditory nerves in the pons, and the resultant disturbance of the labyrinth.

The back pains over the eighth or ninth dorsal vertebra from gastric ulcer are also well-known reflexes; the explanation being that the irriation from the ulcer passes through the sensory sympathetic nerves, and from their ganglia to the corresponding segment of the cord, from which the irritation is reflected through the posterior root nerve to this particular region.

Were there any doubt as to reflex disturbances arising from disordered conditions of the uterus, ovaries, their appendages, the nausea and vomiting of pregnancy would be a sufficient argument to silence all skeptics. But there are no doubts on this subject; the only question is as to what remote disorders are directly the result of irritation in these organs. There is perhaps no problem in the realm of symptomatology more difficult to answer. Those who labor in the field of gynecology will, I think, confirm this statement. That ocular, cephalic, respiratory, cardiac, gastric, spinal, splanchnic, and other transferred irritations, are caused by these pelvic lesions, is a sort of tradition which we all implicitly accepted in our early years, and it still contains much truth. But how often are we doomed to disappointment if we rely solely on the restoration of these generative organs for the cure of the distant irritation.

It is not many years since these viscera were regarded as the *fons et origo* of all evils in woman; but I think the Schneiderian membrane and the ciliary and recti muscles are sharing this responsibility in the last five or ten years. The error of such conclusions is exemplified in the following case: This was a girl of about twenty-two, a former patient of mine, affected with recurrent mania, from whom a well-known gynecologist removed the ovaries with the expectation of curing the mental malady; and both himself and the family actually thought he had restored her, for the operation had quite a derivative effect, and she appeared all at once to get well. But, of course, she relapsed, as these cases always do, and she is still as miserable as she was before the oöphorectomy. The mental disease had not been understood. Owing to the far-reaching influences of sexual derangements in woman, and since pelvic surgery is so comparatively safe in competent hands, it has, I believe, largely become the practice to cure the diseases of these parts, if possible, by way of exclusion, and await results. But it is also true that constitutional conditions, as depraved states of the blood, exhaustion, etc., quickly disorder these organs, and that a course of rest and upbuilding (except there be palpable local disease) may not be time lost.

It was my desire to include a brief consideration of those very interesting reflex phenomena connected with vesical, prostatic, rectal, and urethral diseases; but as I fear to tax your patience, I must forego this part, I will, however, state in connection with this subject, that the numerous reflex neuroses supposed to emanate from phimosis and adherent pre-

puce, can now, at least, be counted in one day; and that we hear much less of the necessity of circumcision, except for hygienic and moral purposes.

I must here distinctly disavow the least inclination to discourage or to interpose any obstacle to the legitimate search for the actual causes of reflex symptoms; but I must insist that one's zeal should not run away with his judgment; and I am opposed to that medical enterprise which would make all the crooked ways straight, and the rough places smooth, in the vague searches for the causes of lesions. But I am free to confess there are extenuating circumstances even in the practice. Were medicine an exact science, and the interpretation of these same reflexes systemized, our investigations would be more exact, and we should know better where to look for the causes of the disease. But since it is not, and since our efforts in one direction after another fail to relieve our patient's distress, we, in our despair, seize upon this, or upon that, as the possible origin; and, like the drowning man, grasp at a mere straw; and so is our most ancient and honorable profession brought low. Unfortunately, my brethren, the fault is too often with ourselves. We do not, or cannot, look deeply enough, and search out the hidden mysteries of disease.

Another interesting question might be touched upon here, if certain disordered conditions present are not believed to be the essential cause of the discomfort or impaired health, to what extent may they act as contributory causes? For example, a case of anæmia has hypermetropia; or a case of uterine disease has also a rectal fissure; will the eye strain in the former tend to use up some extra nerve force, or cerebral energy, so that the nutrition and blood-making organs are retarded in the performance of their functions? It may be so; the question is difficult to answer. Perhaps this is the reason for the general patchwork and repair advised by some specialists. It would seem the wiser course, though, to first correct that lesion which seemed to be the chief cause; and if, after sufficient time and general treatment, the trouble had not disappeared, then remedy other defects.

We must here enter our protest against the premature reports of alleged cures after the removal of the supposed reflex cause. I am sure this is a very prevalent error. Owing to the enthusiasm of many operators, the conclusion is at once reached, after an operation, that the cure is permanent; and forthwith it goes on record. In many of those cases immediately relieved, the psychical effect of the operation, *per se*, or its derivative effect on the circulation, or innervation, is, I believe, no small factor; and from six months to two years should intervene before pronouncing a case positively cured. The temptation to rush into print is dazzling to some, and one reason for the unreliability of statistics.

In our endeavor to reach correct conclusions as to the part certain defects or irritations in organs or tissues may play in this drama of disease, we should bear these leading facts in mind: That constitutional conditions, as gout, syphilis, rheumatism, or other toxic blood states, deep-seated local disease, cerebral and nerve exhaustion, and especially inherited or acquired instability of the nervous system, are of the first importance; and the influence of environment; of meteorological conditions; of various psychical factors, as suggestion, expectation, etc., is not to be underestimated.

Perhaps it may be said that there are three classes of cases with reference to reflex irritations: 1. Those persons of normally robust organizations, on whom ordinary irritations play in vain; their equilibrium cannot be disturbed by anything short of a decided cause. 2. Those persons of unstable nervous systems, who are susceptible to reflex disturbances, but from careful avoidance, and other fortunate circumstances, largely escape their effect. 3. Those neuropathic, sensitive constitutions, so delicately balanced that a single depressing or irritating agent will throw them into an abnormal or pathological state—our neurasthenics and hysterics, for example.

There are many phases of the subject that could have been considered with profit had time permitted. For instance, I have not referred to the mechanism of the reflex arc which enables us to explain many of the more manifest transferred phenomena of irritation. It seems probable that in the production of those complex and unaccountable reflexes, the sympathetic nerves must form the chief media of communication.

NEPHRECTOMY IN A CHILD OF TWO YEARS FOR A SIX-POUND SARCOMA; RECOVERY.*

J. J. BUCHANAN, M.D., PITTSBURG, PA.

The specimen which I here present is a morbid growth of a kidney which I removed by the transperitoneal method from a female child a little less than two years of age. The operation was performed three weeks ago last Thursday, (Jan. 25th), and the child was removed to its home, well, in two weeks from that time.

The history of the case is brief and typical. When she was about nine months old, an enlargement could be felt by the parents in the left side of her abdomen, which gradually increased till it filled the entire left half of the cavity, from the border of the ribs to the groin and encroached far beyond the median line. No urinary symptoms were at any time exhibited. Of late the child had declined in health and weight, and when operated on was in a very debilitated state. The growth was smooth, elastic and slightly movable. It gave all the physical signs of a solid mass. A diagnosis of sarcoma of the kidney was made before operation and the macroscopic appearance of the specimen, taken with the location and history, and age of the patient, leaves little doubt that the tumor is of a sarcomatous nature; but it has not yet been submitted to microscopic examination.

The incision for its removal was placed in the left semi-lunar line, and was rapidly enlarged to an extent sufficient for the extraction of the mass. When the tumor was exposed, it was found to have developed between the folds of the meso-colon; and the descending colon was stretched over its entire anterior surface, from above downward. This condition of affairs has led to the abandonment of the operation by competent surgeons; but since I met with an exactly similar disposition of the bowel over an intralgamentous cyst some years ago, which was successfully dealt with in the manner I am about to describe, I was encouraged to proceed with the enucleation. A longitudinal incision was made through the external fold of the meso-colon parallel with the bowel, and the bowel and the meso-colic covering of the tumor were peeled away till the base of the growth was reached. A satisfactory pedicle was secured, consisting of the ureter and the vessels supplying the kidney. This pedicle was tied with silk and dropped. Only one vessel in the mesentory required ligation, and the entire loss of blood did not exceed an ounce.

An examination of the single fold of meso colon, which was now attached to the descending colon, showed that it probably carried vessels sufficient to nourish the bowel. A temporary packing of gauze was placed in the cavity till the external wound was almost closed. This was finally removed and found dry and the incision closed without flushing and without drainage.

The tumor weighs six pounds, and, it will be observed, springs from the upper portion of the kidneys, which can be easily identified in its lower two-thirds.

In renal tumors of such large size, the lumbar incision (extra-peritoneal) is manifestly out of the question, and the only point as to the incision is its direction. Gerster prefers the transverse, as does Abbe; but, in this case, the longitudinal, in the linea semilunaris proved perfectly satisfactory and seemed to give the freest access both to the surface of the mass and to its pedicle. The Trendelenburg position was employed toward the close of the operation, and no doubt limited the venous oozing and kept blood in the infant's brain.

Although chloroform was used for anesthesia, and the amount and duration of exposure limited as much as possible, an acute bronchitis supervened, from which the child recovered in a few days. No abdominal symptoms appeared; and, as before stated, the child was taken home in two weeks, and has since been perfectly well.

Sarcoma of the kidney is a particularly unpromising disease for surgical treat-

* Read before the Allegheny County Medical Society, February 19, 1895.

ment; and is, of course, absolutely hopeless when treated in any other way. The pedunculated nature of the kidney itself; the fact that a sarcoma, developing in its substance, expands its capsule and forms a definite mass, which can usually be completely removed; together with the fact that autopsies have sometimes shown these growths to have been solitary and without metastases, would render it probable that they are among the most favorable of all malignant tumors for extirpation. On the contrary, however, they are about as unpromising as any growths with which we have to deal. Abbe, of New York, reporting two cases in very young children, still living at periods of one and one and a half years after operation, quotes the statistics of Barth, of Marburg, and Sigrist, as follows: "Barth reports, up to June 8, 1892, collected statistics of 100 nephrectomies for malignant disease, the largest yet gathered, of which 42 died from operation, 20 died from metastases and 38 were cured. The use of the word 'cured' here cannot be accepted in its strictest sense. Sigrist collected 64, with 32 deaths from operation. Nine went one and a half years without recurrence. Five went beyond two years, and one continued well at four years."

These statistics are certainly appalling, and would seem to almost justify the opinion expressed by Mr. Bland Sutton, at a meeting of the Clinical Society, of London, just one year ago. He spoke as follows: "In the cases under discussion, the chances of prolonging life are so very remote, and the immediate risk to life is so excessively great, even in the hands of the most skillful operators, that any surgeon who undertakes the removal of a renal sarcoma in a infant incurs a very grave responsibility, and he would act more judiciously by placing the child under the beneficent charge of a physician."

Mr. Godlee's suggestion, however, should have some weight even with the pessimists, namely, that before the operation be set down as unjustifiable, a series of operations be done on tumors of small size when, of course, the probability of metastasis is the least.

A CASE OF DIPHTHERIA TREATED BY ANTITOXIN.

T. J. ELTERICH, M.D., PITTSBURG, PA.

On Wednesday, February 13th, at 1 P. M., I was called to see Minnie O., aged 6 years; a healthy, well-nourished girl. She had been ill one day. On examination, I found both right and left tonsils covered by pseudo-membranes, tongue heavily coated and a thin serous discharge mixed with blood from the nose. A most pronounced fetid odor was present. The chest, back and limbs were covered by an erythema. Axillary temperature 101½° F., pulse 120, marked dysphagia, headache and general malaise. She had vomited once. Examination revealed nothing abnormal about the heart and lungs.

I rubbed a sterilized cotton swab over both tonsils and sent it to the laboratory for bacteriological investigation. Ordered bichloride of mercury, 1-40 gr. every two hours and stimulants. No local application of any kind was made, neither then, nor at any time during the progress of the disease.

I saw the patient again at 8 P. M. Her condition was about the same as at 1 o'clock; temperature 102½° F., pulse 120, considerable glandular enlargement. Examination of urine sp. g. 1030; acid reaction, no albumen or sugar.

Feb. 14. Condition of the throat about the same as on the previous day, except that the pharynx has become involved. She had passed a restless night with high fever. Temperature at 10 A. M. 99½° F., pulse 120. Report from the bacteriological laboratory, true diphtheria.

At 8:30 P. M., about thirty hours after I had first seen the patient, and about sixty hours after the first appearance of the disease, I injected 10 c. cm. of Behring Serum, White Label No. 2, 1000 antitoxin units. I was assisted by Dr. Chas.

S. Shaw and Dr. J. B. Crombie. Condition immediately previous to injection: Both tonsils and pharynx covered by pseudo-membranes, discharge from the nose, cadaveric odor, temperature 102½°, pulse 120. After having first cleansed the skin with a solution of bichloride of mercury the injection was made by pinching up a large fold of skin, immediately below the right scapula, for this purpose. Dr. Roux's antitoxin syringe was used. No re-action, either local or general, followed the injection. The bichloride treatment was now discontinued, and nothing but stimulants ordered. On the following day I again saw the patient at 9:30 A. M., thirteen hours after injection of antitoxic serum. She had passed a restless night, and complained of pain at the point of injection. However, an examination revealed no inflammation whatever at the point of injection. She was now bright and cheerful; no odor present, temperature 99½° F., pulse 108, somewhat irregular; on inspection the membranes appeared thinner, white in color and at one point on the right tonsil a red spot about the size of a three-cent piece could be seen through the membrane. Slight glandular enlargement still present. Patient taking more nourishment.

At 8.30 P.M., twenty-four hours after injection, a remarkable change had taken place. The greater part of the membrane *had entirely* disappeared, leaving an apparently perfect healthy mucous membrane. No ulceration whatever, temperature 101°, pulse 96 and regular. Patient takes plenty of nourishment.

February 16th, 9.30 P.M., thirty-seven hours after administration of antitoxin, only a small portion of membrane still visible, appearing as thin flakes about the size of a pea on each tonsil. The mucous membrane apparently perfectly healthy, of a pale red color, no ulceration. Patient had slept all night; temperature 98½° F., pulse 90, full and strong. The patient now recovered rapidly, the remnants of membrane disappeared within twenty-four hours, and, to all appearances, the patient is perfectly well; is not anæmic, eats well and sleeps well. The urine was again examined, but no trace of albumen could be found.

Since the administration of the antitoxic serum she has received no medicine whatever, with the exception of a dose of castor oil on the second day. The only unfavorable symptom which was noticed was the irregular action of the heart soon after injection, but which disappeared in the course of twenty-four hours.

I have reported this case, not with the expectation of proving the efficiency of serum therapy. I simply wish to call attention to a few facts; namely, the rapidity with which the remedy has acted, the manner in which the false membrane disappeared, and the absence of any unfavorable symptoms with the one exception, irregularity of the heart's action.

I frankly admit that this case was not of the malignant type, and although a grave form of the disease, a reasonably good prognosis could be given; but at the same time, I must insist that I have never seen a case of such a severe type yield so quickly under the old methods of treatment. Within forty-eight hours after the injection, the false membrane had entirely disappeared without leaving any ulceration whatever. The membrane did not detach, it melted away. The success which I have achieved in this case will warrant me to continue to use this remedy, and especially in the laryngeal form of diphtheria, the treatment of which, we must admit, has been nothing but a dismal failure heretofore.

Cannabis Indica.

This drug, the most active of non-opiate anodynes or soporfics, which was very popular years ago, although little the fashion at present, is deserving of a large share of professional favor, *Med. Rev.* The principal cause which led to its disuse was fear of its toxic power, though there has never been a case of poisoning recorded from its use. Its effect on the system is most marvellous. It causes sleep, overcomes spasms, relieves pain and all nervous irritability, and that too within a few moments after administration. Its soothing and curative effects upon the nervous sympathetic system are great, and there is no one agent that will restore the epuilibrium of nerve motion more quickly. The placidity of repose that is produced by this narcotic is rapid and to the point. Further, it does not check secretion or tend to constipation. It does relieve fatigue and arouse vital action, and can and should be given freely until the effect desired is apparent.

TRANSLATIONS.

ARE MILK-SUGAR AND GALACTOSE DIRECT PRODUCERS OF GLYCOGEN?*

Kausch and Sochin kept rabbits from food for five days so as to reduce the glycogen in the system to a minimum. In the course of twelve hours fifty grams of milk-sugar were given, in concentrated solution. Twelve hours after the last portion of sugar, the animals were killed and the glycogen was estimated. Little was found either in the liver or muscles. This fact was explained on the ground that in rabbits, the ingestion of milk-sugar regularly produces a great deal of gas in the intestine so that absorption is interfered with. Dogs were kept without food for ten or eleven days and then given 100 or 200 grams of milk-sugar. From 8.12 per cent. to 9.82 per cent. of glycogen was found in the liver, 0.33 per cent. to 0.56 in the muscles. After the administration of 100 grams of galactose, 6.73 per cent. was found in the liver and 0.54 per cent. in the muscles. The conclusion is reached that both milk-sugar and galactose, like laevulose, produce glycogen, the quantities of the last found in the dogs not being explicable by decomposition of proteids. The deduction in the management of diabetes is obvious.

TWO KINDS OF BACTERIA THAT PRODUCE BUTYRIC ACID.

Dr. W. Kedrowski has isolated two anaerobic bacteria from mixtures containing butyric acid. One is a slender, motile bacillus, slightly arched, thriving on solid nutrient media, liquifying gelatine, producing a disagreeable gas, coagulating milk in the production of butyric acid. The second is a thick bacillus, growing rapidly on gelatine and secreting a gas of vile odor. It, too, is motile and decomposes milk with the formation of butyric acid.

THE DIGESTION OF SUGARS IN HEALTH.

Dr. W. G. Aitchinson Robertson's article in the Edinburgh *Medical Journal* is quoted. He concludes that cane-sugar is unchanged by the saliva and only slightly inverted by the gastric juice. The more so, the greater hydrochloric acidity of the stomach. In the small intestine, cane sugar is completely inverted by a ferment for which the name invertine is proposed.

[The experience of the translator does not agree with this report. A solution of cane-sugar was warmed in a test-tube with saliva. After about twenty minutes no reduction of copper was found but after an hour, there was an abundant precipitate.]

ACUTE NEPHRITIS FROM INUNCTION WITH NAPHTHOL.

Dr. Baatz reports two cases occurring in boys aged respectively six and eight, who developed nephritis after being treated two weeks for scabies. A 2 per cent. B naphthol ointment was used, the older boy having eight inunctions, the younger six. Four and three grams of the drug, respectively, may have been absorbed. The younger child died.

*Translated for THE MEDICAL AND SURGICAL REPORTER by A. L. Benedict, M.D., from "Schmidt's Jahrbucher."

THE ROLE OF ACID IN PROTOZOAN DIGESTION.

The researches of M. Greenwood and E. R. Saunders are quoted from the *Journal of Physiology*. By the aid of different aniline dyes, they investigated the digestion of several protozoa. Every solid substance introduced, called forth the secretion of acid, but the substances were unchanged by it for a long time. During digestion, the quantity of acid diminished and finally, an alkaline reaction set in. The nature of the free acid was not determined except that bi-carbonic acid was excluded. [And, undoubtedly, from the nature of the reagents used, all organic acids]—Ed. A digestive ferment was not discovered.

THE VALUE OF SUGAR ON MUSCULAR WORK.

The investigations of Vaughan Harley are quoted from the same journal. He first found that the muscular power had daily periods of rise and decline, being greater in the afternoon. A diet of clear sugar supported the strength for muscular exertion almost as well as the customary food except that fatigue was noted earlier. A luncheon of sugar postponed the usual hour of fatigue.

[Pohlman, of Buffalo, has long taught that muscular labor requires carbo-hydrate rather than proteid diet. The translator has found the ordinary cakes of sweet chocolate to be a very convenient and satisfactory luncheon at night.]

THE PHYSIOLOGY AND PATHOLOGY OF READING.

Dr. Goldscheider and his student R. F. Müller, by means of a screen and moveable characters, have exposed letters, figures, etc., to view for a space of about $\frac{1}{100}$ of a second. They found that most persons read by the "word-method" rather than by spelling. Four letters were easily read in the $\frac{1}{100}$ of a second. Complicated and simple letters were read with equal ease and there was a tendency to compare figures and other characters to letters rather than to describe them or to read them as numerals. Words of five letters usually required two exposures of $\frac{1}{100}$ second each before they were comprehended. Such expressions as "Admission positively forbidden" were read in about three hundredths of a second. However, it was shown that only part of the phrase was really seen for similar expressions differing slightly from those in common use were repeatedly misread.

A NEW METHOD FOR STERILIZING LIGATURES.

Mr. Répin, after numerous experiments on the sterilization and preservation of ligatures, finds that the vapor of alcohol exercises a bactericidal action which is capable of destroying all species of micro-organisms. Spores of the greatest resistance, like those of the bacillus subtilis, anthrax, tetanus, etc., are killed by remaining from thirty-five to forty-five minutes in the vapor of absolute alcohol raised to 120° C. Catgut is sterilized by this process without losing any of its properties. Its sterility is then tested by placing it in a tube of bouillon which is incubated for several days. If sterilization is not complete the bouillon becomes cloudy, but if the bouillon remains clear the catgut is rigorously aseptic.

THE MEDICAL AND SURGICAL REPORTER

ISSUED EVERY SATURDAY

Address all communications to P. O. Box 843, Philadelphia, Pa.

HAROLD H. KYNETT, A.M., M.D.
Editor.

RODERIC C. PENFIELD
Publisher.

Editorial Offices, 1026 Arch Street, Philadelphia, Pa.

Entered as second-class matter at Asbury Park, N. J.

TERMS:—Three Dollars a year in advance. Sent four months on trial for $1.00.

REMITTANCES should be made payable to the Publisher only, and should be made by Money Order or Registered Letter.

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SATURDAY, APRIL 20, 1895.

EDITORIAL.

THE PULSE AS AN INDICATOR IN DIAGNOSIS.

Less attention is now paid by medical men to the human pulse as an indicator of diseased states than ever before. This is to be regreted for, although we do not believe that such fine distinctions can be made as were claimed by some of the old authorities, such as being able to tell when a person needed to micturate by the state of the pulse, yet we do think that with a nice sense of touch and with the rational acceptance of other signs and symptoms some of our older brothers averted many mistakes in treatment resultant from faulty diagnosis. Mistakes as often of omission as of commission may be made in this way, for there is no doubt that in almost any diseased state, if there is any possibility of accomplishing anything with remedial agents, it is in its inception.

One of the commonest of errors is the opinion that most diseases must of necessity, run a certain course. To be sure, this is more or less true of some, but cases, even where the tendency is very strong to run a certain prescribed course (under natural conditions,) may often be much modified by treatment. There is no doubt but that there are numerous examples where, when the *materies morbi* is not in large amount, the use of timely remedies may not only modify but abort the disease. This is evidenced very markedly in the statistics so far given of the usefulness of antitoxine as a curative agent in diphtheria. Here the element of *timeliness* is most important.

The well worn proverb *obsta principiis* applies especially to the timeliness of remedies. It avails not to say, "That the cases were of a mild form, and would have gotten well under any, or no treatment." Or to go further and say, as we have heard more than once, "That all cases of cholera infantum that die are true cholera and those cases which get well are not." "That all cases of membranous croup (so called) that get well are doubtful, and cases that die are sure."

In the effort to bring the practice of medicine to an exact scientific basis, so far as physical signs, symptoms and treatment are concerned, the finer diagnostic features are often lost sight of, and the possibilities of discerning them discredited. In fact, the acceptance of fine diagnostic indications, unless accompanied by ample evidence of mechanical proof, is refused, and the assertion of such distinctions relegated to the realm of charlatanism, supermundane quackery, or old fogyism. Followed out to the ultimatum, this means that one cannot diagnose any of these diseases until their characteristic signs and symptoms are written all over the patient, and if one undertakes to diagnose and cure the patient before the disease is well marked, he is met with the cheerful assurance that the patient did not have the disease.

There is such a thing as a diphtheric pulse, in certain stages, as distinctive from croup pulse as night is from day, which, by itself, would contravene any attempt to confuse or ally the diseases. There is such a thing as scarlet fever pulse, a pleuritic pulse, a pneumonia and a typhoid fever pulse—and a lot of other kinds of pulses.

The fact must never be lost sight of, however, that the pulse is only *one* thing *by itself*, and must be taken in connection with a multitude of other conditions, and that fine diagnostic points, not depending on the microscope (which is equally liable to deceive), appeals more to conscience than does any amount of mechanical genius, and that the capability to apprehend such points comes with time, experience and intellect.

On the Toxic Properties of Cocaine.

In a report recently presented to the Paris Academy of Medicine, by Maurel, of Toulouse, it is shown that under the influence of this alkaloid the leucocytes undergo changes: they become spherical and rigid, increase in size, and no longer adhere to the vessel walls. On the other hand, the capillaries contract, and thrombosis and embolisms, particularly pulmonary embolisms, may be produced. These changes may be seen after even small doses of concentrated solutions. His experiments show that intra-arterial injections, made in the direction of an unimportant viscus, are much less dangerous than intravenous injections.

Conception in the Puerperium.

Gruber reports a case which he had under his care last year, of a woman, aged 38 years, who had borne children. She was under Gruber's care for abortion at the fourth month. Four months later she consulted him again in regard to her menses, which had not appeared since her miscarriage. Her abdomen had increased in size, and on the night before her visit she had felt the movements of the child. On examination, a four-months pregnancy was diagnosed. Nine months after the abortion she gave birth to a fully-developed female child. Gruber refers to this as a case of conception during the puerperium.

Chlorine Water in Diphtheria.

Dr. Schubert reports on the value of chlorine water in diphtheria. After an experience of many years he is most enthusiastic on the subject, claiming that no known treatment equals that of internal administration of chlorine water.

He gives a teaspoonful of a mixture consisting of two parts of chlorine water, and one part of distilled water, repeating every two or three hours according to the gravity of the attack. On account of the pungent odor, the nose may be held for smaller children. Gargling or painting the throat is superfluous, but no water should be given after the draught. As a prophylactic the foregoing mixture may be given two or three times daily.—*Dental Med. Wochen.*

Chloral Hydrate in Hæmoptysis.

Dr. J. Palvy has tried chloral hydrate in 15 cases of hæmoptysis. Doses of 15 to 25 grains (1 to 1.6 grams) were injected per rectum. They are reported to have produced an effect within one half to three quarters of an hour. The chloral hydrate, besides, seemed to be also a valuable prophylactic.

CURRENT LITERATURE REVIEWED.

IN CHARGE OF ELLISON J. MORRIS, M.D., AND SAMUEL M. WILSON, M.D.

JOURNAL OF CUTANEOUS AND GENITO-URINARY DISEASES.

Dr. Edward Martin reports a case of

Epithelioma of the Penis.

The author operated on a man sixty-two years old who had been troubled for eight years with a growth on the penis. During this period applications of nitrate of silver were made at irregular intervals, causing a temporary disappearance of the prominence followed by an exacerbation. No history of injury accounted for the sore, and the only family history bearing on the subject was the death of an aunt from cancer of the stomach.

The dorsal lymphatics and the inguinal glands seemed unaffected, and amputation was performed in the usual way with such success that, nine months afterward, the patient is still free from symptoms of recurrence.

The author is not indisposed to regard cancer as communicable and to compare it to tuberculosis; he mentions writers who have shown that it may be due to drinking water, that a nodule may grow after transplantation. Few cases have yet been reported where the source of contagion was evident, but one seems to have shown where a man developed epithelioma of the penis shortly after the death of his wife from cancer of the uterus. Syphilis seems to have no other predisposing power than by furnishing a spot of faulty organization or minor resistance in the scar from a chancre.

So long as an epithelioma has not advanced beyond the warty stage the prognosis is fairly good if operation be performed, but when the tissues begin to break down the chances of recurrence are greatly increased. Sometimes it appears as though inflamed lymphatic glands improve after their source of irritation is gone. Even when the inguinal glands appear macroscopically healthy, the microscope usually shows them to be cancerous.

The main object of the paper is to call attention to the facts that:—1. is not possible to deny the possibility of contagion in epithelioma of the penis. When amputation is required the inguinal glands should be dissected out, even if not appreciably enlarged.

Dr. W. R. Pryor writes of

Latent Gonorrhœa in Women.

He believes that in a majority of prostitutes and in almost all women who have had gonorrhœa there may spring up, from irritation of any kind, a discharge containing gonococci and differing only in degree from that due to recent infection.

Microscopic examination of the discharge collected from the cervix, urethra, and the vagina, of a large number of patients, many of whom complained of no local discomfort at the time, led to the opinion that a purulent discharge from the genitals rarely existed without gonococci being present in it or in the tissues producing it. The gonococcus is frequently present when there is no perceptible discharge of any kind, and while the vaginal discharge is rarely free from other pus producing organisms and may even appear to contain no gonococci, the scrapings by a Volkmann's spoon will usually show the tissues of the cervix to contain gonococci generally without other micrococci. The author draws the evident conclusion that one is not able by simple inspection to declare a patient free from gonorrhœa.

The experience of the author is that after a woman is infected she rarely is completely cured of this disease. This is due to two causes; she will not persevere in treatment after the annoying symptoms disappear, and when the cervical racemose glands are invaded it is almost impossible to eradicate the disease from them. The stronger preparations of iodine seems to be more effective for this purpose than other remedies.

Dr. G. Frank Lydston writes of

Leucoplasia and its Relation to Syphilis.

In this article the early mucous sores are not meant, but growths which appear at a later period, often when all other manifestations of syphilis have disappeared, and the author questions whether they may properly be regarded as syphilitic or whether they are not simply manifestations of a weakened system which might be due to other causes than syphilis, and which he has not found amenable to specific treatment.

The growths spoken of tend to form distinct masses or overgrowths of the mucous and sub-mucous tissues, and have received various names, among which "post-syphilitic leucoplasia," or "post-syphilitic leucoplakia" seem the most appropriate.

Habitual users of tobacco may show these growths without being syphilitic and there seems to be the same family predisposition that is often seen with regard to cancer, etc.

The condition leading to these placques may instead produce fissures of varying size with hyperplastic margins or the edges may lose the papillary appearance of a healthy tongue and show instead the smooth surface of mucous membranes.

A more serious variety tends to form nodules throughout the tongue and the step is a short one between these and cancer and they are best treated when this fact is remembered.

The author concludes that we must remember:

1. The possible existence of a certain degree of the original trouble—syphilis.

2. The question whether syphilis has not been eradicated, in consequence of which syphilitic treatment is to be avoided.

3. The relation of previous antisyphilitic treatment (mercury) to the lesions present.
4. The existence of trophoneurosis either as a result of syphilis, its treatment, or more probably of idiosyncrasy.
5. The relation of local irritants.
6. Most important of all—the lesion is to be regarded as possibly threatening to become a malignant neoplasm.

General tonic treatment is advocated and the possibility that small doses of antisyphilitics may also be required, mentioned. If operative treatment is attempted thorough removal must be carried out.

Dr. I. N. Bloom reported an

Obscure Case of Cerebral Syphilis.

The patient was a man thirty-five years of age who had suffered from iritis, enlarged cervical glands, mucous patches, etc., but who could give no history of primary sore, and whose wife remains free from any specific symptoms.

While on a business trip he was without warning taken with a sort of semi-stupor and a disinclination to leave his bed. He was seen by a physician who saw nothing of importance in the case, and the man in a few days moved to another town and then to a third and so on for four weeks, until finally word was sent to his relatives and he was brought home. When seen by the author he was in a lethargy, could be made to sit up, feebly answer questions, etc. His pupils responded to light. His face up to the forehead presented a yellowness or cachexia like that seen in cancer.

Active syphilitic treatment caused rapid disappearance of these symptoms. The patient is now receiving daily one drachm of mercury by inunction and three doses of ninety grains at each of potassium iodide.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

The Ice Bag as a Cardiac Stimulant.

A writer in *La Medicine Moderne* is quoted in *La Province Medicale* as saying that the application of an ice bag over the heart, according to Dr. Jullien, is a powerful therapeutic measure. It seems that in 1887 M. Jullien read in the *Gazette delle Cliniche* an essay on this subject by Dr. Silva, and was struck with the author's conclusions. Experimentation upon animals has shown the possibility of raising the blood pressure rapidly from a hundred and twenty millimetres to a hundred and seventy and even a hundred and ninety, and of diminishing the frequency of the pulsations considerably; and these results had been confirmed clinically. M. Jullien was not slow to verify these observations for himself. One day he was called to take charge of a patient with typhoid fever. He advised treatment by means of cold baths, and transferred the patient, a large and strong youg girl, to the care of a colleague. Soon afterward, however, his colleague's illness rendered it necessary for him to take charge of the case again. It was a grave one, and the febrile phenomena were intense. The elevation of temperature proved rebellious to the use of cold water. Soon there was a typical picture of the ataxoadynamic form of the disease. The patient had lost consciousness entirely and lay on the bed entirely uncovered, in a tetanic attitude, varied only by the certain spasms of the head. The temperature remained all the time above 104°; the pulse had reached successfully 120, 140 and 160. Under these circumstances M. Jullien fancied that the application of ice over the heart might constitute a last resort, and he made bold to carry it out. He admits that it was not without timidity that he placed the rubber bag on the region which scarcely showed the tumultuous and enfeebled beats of the exhausted heart. He watched the pulse closely, ready to stop the attempt at the first signal of danger. But in less than fifteen minutes he saw the number of the pulsations diminish and their amplitude increase; in a short time the almost imperceptible undulations of the artery gave place to more decided elevations. Whenever he removed the refrigerant the alarming symptoms returned immediately, so that after many trials he concluded to leave the ice bag in place for several days. After that the temperature yielded, the cerebral phenomena disappeared, and the patient was out of danger. He is convinced that she owed her safety to the decisive measure which he had adopted. In another case also, he accomplished a result equally remarkable by this means. In conclusion, he remarks that the beneficial effects show themselves in from fifteen to twenty minutes from the beginning of the application, and reach their maximum at the end of an hour. It is true he says, that they are evanescent, disappearing rapidly when the application is suspended, but there is no danger in prolonging it as long as the general condition remains precarious. In some cases, under its action, the height of the pulsation has been observed to be tripled, which means a pulse ampler, fuller, and more tense, with the subsidence of dicrotism, intermittence, and irregularity, and with a longer duration of the diastode. An interesting fact noted is that the effects of alchohol and those of atrophine on the circulation are in a measuee neutralized by the ice bag. This, says the

author, is not astonishing, since alcohol has the property of lowering the blood pressure by paralyizing the pneumo-gastric nerve. This antagonism, he suggests, may possibly be serviceable in some cases of poisoning.

The Mental Symptoms of Cerebral Syphilis. A Clinical Study.

Dr. Frank P. Norbury, Jacksonville, Ill., draws the following conclusions:

1. Somnambulism and allied states; lapses of intelligent conception with associated loss of memory are mental symptoms of cerebral syphilis.

2. Sudden comnolence with ocular spasm or paralysis points to syphilis, when preceded with headache and monoplegia is almost pathognomonic. Headache, quasi-periodical, as defined by Gray with marked insomnia, suddenly ceasing and followed by physical disturbance is due to syphilis.

3. Melancholia or mania when following periodical headaches, insomnia, and somnolence (*a*) with ocular spasm or other form of monoplegia of heterogeneous paralysis is due to syphilis. (*b*) Pseudo-paranoia. By this he means cases presenting all symptoms of paranoia, systematized delusions depending on hallucinations of sight, hearing, taste or smell, with slight impairment of general mental functions is due to syphilis, as we know that syphilis causes isolated local losses of power, and it is noteworthy when the special senses involved that mental derangement usually results. (*c*) Pseudo paresis, characterized by fibrillary tremor of tongue, indistinct speech (partial or complete aphasia), uncertain and trembling gait, with delusion of grandeur, and occasional outbursts of maniacal excitement, pupillary involvement, all characteristic symptoms of paresis, but which yielded readily to antisyphilitic treatment, we can say it was due to syphilis.

4. Class four have had epileptiform and apoplectiform attacks. We find cases in which treatment was undertaken too late. The symptoms are those of terminal dementia, only occurring in patients of previous sound mental condition and with no special hereditary history.

Pathology of Basedow's Disease.

H. Reinhold (*Munich Med. Wochenschrift*) believes the seat of the disorder to be in the thyroid gland, and reports the following case in support of his view:

The patient, previously healthy, contracted the grippe, which was complicated with an acute inflammation of the right thyroid gland. Suppuration did not occur, and the swelling and fever soon disappeared. During the fever the pulse was rapid; became normal, however, when the temperature returned to normal. Patient recovered and returned to work. Three months later there was gradual but pronounced simultaneous development of the classical symptoms of exophthalmic goitre. The author maintains, therefore, that it is a typical case of Basedow's disease, resulting from an acute infectious inflammation of the thyroid gland. Reinhold's view is certainly supported by clinical experience, as I distinctly recollect a number of cases which were at first merely simple goitre, but gradually developed the other classical symptoms of Basedow's or Grave's disease. Never did I see among the large number of cases (about thirty) of exophthalmic goitre which have come under my observation, the thyroid gland free from disease and enlargement. While one of the other symptoms which make up the classical picture, the tachycardia, the exopthalmos, the fine tremor or Graefe's symptoms may be wanting.

The Parts that Do Not Grow Old.

In his work on the senile heart Dr. Balfour tells us that there are two parts of the human organism which, if wisely used "largely escape senile failure." These two are the brain and the heart. Persons who think have often wondered why brain workers, great statesmen, and others, should continue to work with almost unimpaired mental activity and energy up to a period when most of the organs and functions of the body are in a condition of advanced senile decay. There is a physiological reason for this, and Dr. Balfour tells us what it is. The normal brain, he affirms, "remains vigorous to the last," and that "because its nutrition is especially provided for." About middle life or a little later, the general arteries of the body begin to lose their elasticity and to slowly but surely diltate. They become, therefore, much less efficient carriers of the nutrient blood to the capillary areas. But this is not the case with the internal carotids, which supply the cappillary areas of the brain. On the contrary, those large vessels "continue to retain their pristine elasticity, so that the blood-pressure remains normally higher than within the capillary area of any other organ in the body. The cerebral blood-paths being thus kept open, the brain tissue is kept better nourished than the other tissues of the body." Who is there among those who have reached or passed middle age that will not be rejoiced to find such admirable physiological warrent for the belief that the brain may continue to work, and even to improve, almost to the very last hour of life?—*Medical Record.*

A Remedy for Insect Stings.

A paint for the stings of insects is given in the *Medical News* in which ammonia is kept in close and prolonged contact with the affected part, and is prescribed as follows:

Aq. ammoniæ.....	m. cl;
Collodion.....	gr. l;
Acid. salicylici.....	gr. v.

A few drops to be applied to each bite or sting.

Early Diagnosis of Phthisis.

Bernheim, of Paris, presented at the Congress at Rome (*Bulletin Medicale*) a paper in which he called attention to the importance

of examination of the spleen and the lymphatic glands in cases of suspected tuberculosis. According to this observer the spleen is always enlarged in cases of tuberculosis, even in the early stages or the disease. This is a new diagnostic point in tuberculosis, and one which should be carefully studied. As a bacteriological test, it is exceedingly valuable in advanced cases, and is also applicable when the disease is in an incipient stage.

Fatal Case of Poisoning by Quassia.

Dr. Ferdinand Venn, of this city, reported the following case to Prof. H. C. Wood, who published it in the *University Medical Magazine* with the subjoined remarks:

On Friday, November 16, Mrs. M. came rushing into a drug store, stating that she had poisoned her child by a rectal injection of quassia for seat worms. She bought five cents' worth of quassia (two ounces) in the morning, poured hot water over it, and kept it on the rear part of the stove all day. In the evening she injected this fluid (about one pint). Five to ten minutes after the injection the child became livid, the lips losing all color; vomited once (contents of stomach), muscles entirely relaxed, and respiration labored. When I saw the child its lips were livid, the skin had a waxy hue, muscles relaxed, breathing labored and shallow, the pulse imperceptible. Death took place about one minute later. I tried artificial respiration, but to no avail. At no time after I saw the child did the heart pulsate; it seemed paralyzed.

I thought the mother might have perforated the intestine with the syringe (a case of that kind having occurred in our neighborhood about a year ago), but such was not the case.

So far as my reading goes there is not on record any case of serious poisoning by quassia. Nevertheless, the experiments of Hoppe show that the active principal is a poison in frogs, especially affecting the nerve trunks and the muscles. Fifteen milligrammes of it have caused a man violent frontal headache, vertigo, excessive nervousness, with pronounced evidences of toxic gastro-enteritis, such as burning pain, vomiting, and diarrhœa. Since receiving the foregoing letter from Dr. Ferdinand Venn I have had him make inquiries as to the possibility of there having been a mistake in the selection of the drug, but so far as can be made out no mistake was committed, and there is scarcely any drug that could readily be mistaken for quassia wood.

Uncontrollable Vomiting of Pregnancy.

Bonnet, (*Revue Obstet. et Gynec.,*) relates a case where the patient was twenty-two, and single. Her first pregnancy went on to term; but in the second, labor was induced at the fourth month in consequence of hyperemesis. During the early part of the third pregnancy vomiting became very severe, lasting a month, and reducing her to an alarming extent When just over six weeks pregnant, a laminaria tent was introduced; on January 14, 1890, the vaginia was plugged with iodoform gauze. For twenty-four hours the vomiting ceased. Next day the tent was removed, and the sickness returned. On January 17th two tents were introduced as high as possible. The vomiting again stopped, returning when the tents were taken out. The five tents were progressively introduced, and left in place for three days. The sickness stopped and did not return. The uterus showed no signs of contracting throughout the course of the above treatment. The patient took food well and grew stout. Seven and a half months later she was delivered of a healthy child at term.

Pathology of Vaginismus.

By Thos. More Madden, British Medical Association (*Med. Age*).—Abnormal sensibility attended with spasmodic contraction of the vulvo-vaginal orifice often comes under observation as a cause of dysparunia. In such cases the local hyperesthesia is evinced on any attempt at examination, and is most marked about the meatus urinarius or in the vicinity of the vulvo-vaginal glands and fourchette whence the hymen or its remains project upwards.

Without referring here to the different theories which have from time to time prevailed with regard to the general causation of vaginisms, or to the minor cases of this complaint, which are commonly sufficiently relieved by the topical application of methylene blue, cocaine, or other local analagesics, confining myself to the etiology and treatment of those graver forms of vaginismus, occasioning dysparunia, which require more serious remedial measures, I would presume to express my opinion, founded on somewhat extensive experience, that in the great majority of these instances the complaint is not only very intimately connected with the constitutional neurotic temperament generally evinced by such patients, but also that, hardly less frequently, it is also largely ascribable to a special local lesion, viz.: an abnormal condition, or neuritis, affecting the trunk or terminal fibrillæ of the punic nerve, one branch of which supplies the structures in the vicinity of the clitoris, whilst the other, or superficial perineal nerve, is distributed to the labia as well as to the perineum in which its terminal branches ramify.

Strychnia in Uterine Hemorrhage.

Strychnia is now considered a specific in uterine hemorrhage. It should be administered in one-sixtieth grain doses three times a day for a period of from four to six weeks before the time of labor, in all cases where there is a history of flooding. It will also prove of value where previous labors have been tardy, owing to irregular and feeble uterine contractions.—*N. Y. Med. Times.*

Electricity in Gynecology.

Dr. G. Apostoli, of Paris, the ardent advocate of the use of electricity in gynecology,

thus concludes an elaborate article in the *American Journal of Obstetrics:*

Intrauterine electrotherapy (faradic, galvanic, or sinusoidal) as advocated by me, prudently, rationally, and patiently applied, merits to remain at the head of conservative gynecological therapeutics for the following reasons.

1. Because in most cases it assures a symptomatic relief which often takes the place of cure.

a. Sovereign in its effects on endometritis and the principal functional troubles (amenorrhea, dysmenorrhea or metrorrhagia.)

b. Very efficacious against non-cystic fibromata.

c. Often useful—not always—in non-suppurative periuterine inflammation.

d. Powderless, of itself alone, against cystic collections of all kinds, and suppurating lesions of the pelvis or vicinity.

2. Because in the cases where it is inefficacious its failure to benefit can be made use of (by the attentive and harmless study of its reactions during and after application) to clear up or confirm a doubtful diagnosis, and thus to show the necessity of and hasten a surgical interference delayed or already refused.

3. Because if the immediate symptomatic results of its application are generally favorable, the ultimate results offer no less interest by reason of the subsequent pregnancies observed.

Eighty women treated by me, and solely by intrauterine electrical applications, have had, mainly, after a variable delay, but most often after the end of treatment, one or more consecutive pregnancies, which at once testifies to the symptomatic and functional efficiency of the treatment.

In conclusion, I maintain that gynecological electrotherapy, far from being hostile to surgery—on the contrary, often pointing out the way and showing the legitimacy of its indications—claims an important role, whether it be, as in many cases, to avoid a dangerous and useless mutilation; or, as in others, to emphasize the necessity of operative interference; or, in fine, in certain cases to complete the work of surgery which has exhausted its means, and rid in the most efficacious and prompt manner in the complete relief of symptoms and restoration of functions.

Ovarian and Tubal Diseases in the Causation of Sterility.

Ashby concludes a paper as follows: The adjustment of the tube and ovary during ovulation is effected in the human female by the most delicate mechanical arrangement, and may be defeated by trivial mechanical interferences.

In animals that habitually have multiple pregnancies a more perfect mechanical provision is made for the reception of the ovum by the tube. The number of ova impregnated seems to bear a close relation to the perfection of the arrangement which is provided for their passage into the tube. Thus in the bird will be found the most perfect type of mechanical adjustment, in women the most intricate and difficult.

The adjustment of the pavilion of the tube to the ovary may be set aside by the most trivial vices of structure and disease, resulting in absolute or relative sterility.

Sterility is due to minor diseases of tubes and ovaries to a greater extent than has been recognized. In an investigation of the etiology of this condition this fact should be considered in connection with an investigation of other causative influences.

The highest aim of surgery is to restore and not to destroy function. In the treatment of minor forms of ovarian and tubal disease this fact should be borne in mind. Organs should not be sacrificed to the rule of expediency, but should be preserved in deference to a law of genuine conservatism.—*The Am. Jour. of Obstetrics.*

Condition of the Bowel and Contents of the Sac in Strangulated Hernia.

Tietze reports as follows from observations in Mickulicz's clinic and from experiments on animals:

1. Bacteria may be present in the fluid at a time before structural alterations have occurred in the bowel wall where, at all events clinically, the bowel would be spoken of as above suspicion.

2. But this condition is not constant, and the bacteria are not present in such numbers as to modify our treatment. Clinically the fluid is to be regarded as sterile at this stage.

3. Not even in every case of gangrene of the bowel does the fluid contain living organism capable of development.

4. Against certain forms of bacteria the fluid of the sac, both in man and other animals, possess a destructive influence.—*Langenbeck's Archiv.*

Movable Kidney.

The author, Johnson, of Richmond, Va., (*Annals of Surgery*), reports seventeen cases of movable kidney, treated by operation. All of the cases recovered, and nearly all were traced to final results.

In no case was relapse noted, and marked improvement in general health was observed in most of the cases.

The technique employed was, in brief, as follows:

An external incision, beginning half an inch below the twelfth rib and extending downward and outward nearly to the crest of the ilium. The kidney is placed as nearly as possible in its normal position. The capsule is cut through and the edges reflected. A medium sized suture is then passed through the substance of the kidney itself, and the deep portions of the cut abdominal walls, but not ligated until later. The edges of the capsule are then sutured with fine silk to the deeper parts of the wound. The first and larger suture is then tied. The upper part of the external wound is then closed and the lower part packed with gauze The patients, as a rule, are kept in bed four weeks.

The Microbes of the Eye.

The researches of bacteriologists have shown that the conjunctival sac is a famous feeding-ground for microbes of all kinds. A very complete and learned review of the question by Dr. A. Guenod (*Gazette des Hopitaux*), shows the present status of the subject and indicates that, in time, all inflammatory conditions of the conjunctiva will be distinguished nosologically by their specific microbes rather than by the vascular reactions. Thus he shows that the acute catarrhal inflammations are due sometimes to the bacillus of Weeks and, more rarely, to a pneumococcus or streptococcus organism. The purulent conjunctivitis of genital origin is usually due to the gonococcus. Croupous conjunctivitis may be due to the bacillus of Loeffler, but is oftener a mixed infection.

In chronic inflammatory conditions there have been found the trachoma coccus (Koch, Poncet, Michel), the gonococcus, and a microsporon described by Noisewski. In xerosis, the bacillus of pseudo diphtheria is present. The bacilli of tuberculosis and of lupus also may develop in the conjunctiva.

According to Guenod, in the healthy conjunctival sac one never finds the microbes characteristic of the three principal forms of acute conjunctival inflammation (blenorrhagic, diphtheritic, and contagious catarrhal). Only exceptionally does one meet with staphylococci, streptococci, and pneumococci. The conjunctiva is, therefore, reasonably aseptic in healthy eyes. The constant flow of lachrymal fluid across its surface is believed to have some antiseptic influence.

Irrigation of the Naso-Pharyngeal Cavity in Infectious Diseases.

According to this author's experience, Dr. A. Heller, (*Sem. Med.*) irrigation of the naso-pharynx is an excellent therapeutic measure in infectious diseases, being usually followed by a more or less rapid diminution of the fever and other morbid symptoms, shortening the duration of the affection and preventing the production of diverse complications. He employs this "pharyngotherapy" (as he styles it) on the hypothesis that infectious diseases (except cholera and dysentery) are due to the inhalation of the infectious agent, which first localizes in the nose and pharynx, where it multiplies during the period of incubation. The virus penetrates thence into the blood and chyle of the organism, and the infection becomes general.

The author uses boiled water, tepid or warm, pure or with the addition of a small quantity of some saline antiseptic. The temperature of the liquid varies according to the sensitiveness of the subject, the degree of fever and the season of the year. Many patients bear well irrigations of water of as high a temperature as 50° C. These irrigations ought to be made by the physician himself; pressure should be feeble, the current being directed horizontally through the nares, the patient holding his mouth open, lest the injected liquid penetrate into the Eustachian tube. It suffices to inject through each nostril the contents of two or three pear-shaped syringe-balls twice a day.

This treatment it is reported, often immediately produces a considerable depression of temperature, affording marked relief. And, besides, it promptly improves the local lesions of the naso-pharynx, such as anginas of diverse natures.

The therapeutic action of these irrigations, it is said, is especially striking in erysipelas, which often promptly becomes benign and soon disappears. In diphtheria and croup, it peculiarly facilitates the throwing off of false membranes, and frequently arrests the symptoms due to septic infection.

In whooping-cough it removes the viscous mucosities from the posterior nares and the larynx, diminishes the number of paroxysms, and manifestly shortens the duration of the affection. In typhoid fever, these irrigations contribute greatly to moderation of the fever and cephalalgia, to dissipate the delirium and comatose condition, and to restore to the tongue its natural humidity. Finally, they are said to be equally useful in acute articular rheumatism (when the pharynx frequently constitutes the entrance to infection), in small-pox, measles, scarlet fever, tuberculosis of the respiratory passages, and in swelling of the glands of the neck in children.

Heart Disease.

Pawinski (*Therapeutische Monatscheft*) compares caffein natrio-salicylate with strophanthus and digitalis as follows:

In valvular diseases of the heart, with disturbance of compensation, digitalis and strophanthus are superior to caffein, but the latter can often do good service when the former are contraindicated.

In respect to regulating the heart rhythm, caffein is also inferior to the others; but in respect to excitation of diuresis, it is much superior. The best field for the administration of caffein is in diseases of the heart muscle, either functional or degenerative, and especially in the early stages of the disease. But in the later stages, when the heart, in consequence of progressive degeneration of the muscle fibers, is not able to perform its duty, and there are œdema, dyspnœa, and dilatation, then we must resort to digitalis.

Caffein is also indicated in acute insufficiency in patients whose circulatory system is otherwise healthy, such as after severe mental strain, moral commotion, and especially during fevers. In many cases also caffein produces a pleasant narcotic effect.

Lycetol—Antiarthritic.

Lycetol is the tartrate of dimethylpiperazine and appears to be fully as effective as the base Piperazine. Aside from the pronounced action of the latter as a uric acid solvent a favorable therapeutic effect can be anticipated from this preparation because its other component consists of tartaric acid which in the system becomes converted into

a carbonate and renders the blood more alkaline, besides exerting a diuretic influence. According to the theory accepted by many physicians as to the nature of gout, there is no increased formation of uric acid in this disease, but the blood of gouty persons is only faintly alkaline and therefore less capable of holding uric acid or the urates in solution. By the administration of this tartrate of a Piperazine derivative, therefore, the combined effects of its components are secured. Lycetol possesses the additional advantages of having an excellent taste and of being non-hygroscopic. Its aqueous solution has an agreeable acid taste and does not excite repugnance when administered for a prolonged period. Dr. Wittzack who has employed Lycetol in a number of cases of the uric acid diathesis with satisfactory results, observed a considerable increase of the secretion of urine after its administration. The remedy was well tolerated without producing any disturbance of the general health, and under its use the gouty symptoms subsided, and recurrences were prevented, and a considerable diminution of urinary gravel occurred. Dose 1.0 Gm. Pro Die.

Infection Processes and Mental Diseaes.

The endeavor to find a specific organism for every disease has even led specialists in nervous troubles to ask if mental disease can be due to a special organism, and Dr. Charles K. Mills in considering this subject in the *American Jonrnal of the Medical Sciences* concludes that:

1. Specific infection must be included among the causes of mental symptoms and diseases which precede, accompany, or follow febrile and other infectious disorders.

2. Much negative evidence can be adduced in favor of acute delirium or acute mania being due to toxemia—such evidence as is afforded by autopsies which reveal neither gross nor histological lesions; and in these cases the toxemia probably overwhelms the patient before the production of meningitis or other disease.

3. Analogies with nervous affections which are known or believed to be of microbic origin—such as multiple neuritis, myelitis and chorea—favor the view that insanities with similar or related phenomena and lesions are also microbic in origin.

4. The evidence afforded by careful bacteriological investigation of cases of acute insanity is thus far meager, and shows that various micro-organisms may induce the same or similar types of mental disease.

5. The mental disorders of pregnancy and the puerperal state are probably, in a considerable proportion of cases, toxemic, without reference primarily to childbirth; but it cannot be regarded as proved that a bacillus of either eclampsia or puerperal mania is the sole cause of these affections.

A New Cure for Hay Fever.

Fuber, of Hamburg, who suffered a great deal from hay fever during last summer, noticed that in winter a coryza was accompanied with hot ears, which regained their normal temperature when the discharge from the nose was established. He tried a reverse order of things on the hay fever, and rubbed his ears until they became red and hot. It is now the third summer he has led an endurable existence. As soon as there is the least amount of fullness in the nose, the ears are noticeably pale. A thorough rubbing of the ears has always succeeded in freeing the nasal mucous membrane from congestion. The rubbing must be thorough and repeated.—*Med. Reporter, Calcutta.*

Prophylaxis of Consumption.

"A few points on the avoidance of the greatest danger to human life," should be the full heading. Consumption destroys more lives than any other cause.

The first point is that the matter which those sick with lung troubles cough up must be temporarily and permanently disposed of in such ways as to avoid all danger from it.

The infectious matter of the expectoration must not be allowed to dry, for it will then fly into the air and be inhaled.

The cuspidor, or other vessel, which receives the sputa, should contain a little water, or preferably a five per cent. solution of carbolic acid (Solution E.) or of Lysol.

Flies should not be allowed to be the carriers of infection; therefore cuspidors and spit cups should have covers in warm weather.

Each cuspidor should be filled with boiling water, when it is to be cleansed, its cover should be re-applied, and it should then be allowed to stand until it is cooled. One reason for prescribing that only a small quantity of water shall be put into the cleansed vessels, is that the boiling water may act as a disinfectant.

Each sick person must, therefore, have two cuspidors—one in use and one undergoing disinfection and the process of cleansing.

The rooms in which consumptive persons dwell or sleep should be furnished in such ways as to minimize the danger of their retaining infection and to permit their cleansing easily and safely. Carpets should not be in use, wooden floors with a few rugs are best; straw matting is permissible. The idea is the avoidance of raising a dust in sweeping. The floor or floor covering should invariably be cleansed by wiping with a damp cloth, never by sweeping with a dry broom.

The one main point in all this is to keep the infectious dust out of the air of dwellings, that it may not be inhaled.